Bureau of Air Quality

South Carolina Department of Health and Environmental Control

State of South Carolina:
Network Description and Ambient Air Network Monitoring Plan

Calendar Year 2009

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South Carolina Department of Health
and Environmental Control

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CERTIFICATION

This document contains the planned changes and final description of the sites and monitors of the South Carolina Ambient Air Monitoring Network for criteria pollutants and related parameters for calendar year 2009. The South Carolina Department of Health and Environmental Control (DHEC), Bureau of Air Quality and Bureau of Environmental Services, Division of Air Quality Analysis certify that the network described herein meets or exceeds the minimum requirements needed to support the State Implementation Plan, national air quality assessments and policy decisions as required in 40 CFR Part 58, Ambient Air Quality Surveillance, at the time of submittal to the United States Environmental Protection Agency (EPA), Region 4. Due to circumstances that may arise during the implementation of the plan in 2008 and during the 2009 monitoring year, some elements of the network may require modification. A notification of modifications will be posted on the DHEC website and provided to EPA Region 4. Where necessary, a request for approval of deviations from this plan and supporting documentation will be submitted to EPA Region 4.

Scott Reynolds Signature: _____ Date: _____
Director, Division of Air Quality Analysis, Bureau of Environmental Services, South Carolina Department of Health and Environmental Control

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Acronyms

AQCR – Air Quality Control Region

AQI – Air Quality Index

AQS – Air Quality System

BAQ – Bureau of Air Quality

BC – Black Carbon

CAAA – Clean Air Act Amendment

CBSA – Core-Based Statistical Area

CFR – Code of Federal Regulation

CSA – Combined Statistical Area

DAQA – Division of Air Quality Analysis

EPA – Environmental Protection Agency

FDMS – Filter Dynamics Measurement System

FEM – Federal Equivalent Method

FRM – Federal Reference Method

GC/MS – Gas Chromatography / Mass Spectroscopy

HPLC – High Performance Liquid Chromatography

IC – Ion Chromatography

ICP – Inductively Coupled Plasma

IMPROVE – Interagency Monitoring of Protected Visual Environments

ICP/MS – Inductively Coupled Plasma Mass Spectroscopy

LAC – Light-Absorbing Carbon

MET - Meteorology

MSA – Metropolitan Statistical Area

mSA – Micropolitan Statistical Area

NAAQS – National Ambient Air Quality Standards

NATTS- National Air Toxics Trends Site

NADP-MDN – National Atmospheric Deposition Program Mercury Deposition Network

NATA – National Air Toxics Assessment

NCore – National Core Monitoring Network

NPAP – National Performance Audit Program

NWS – National Weather Service

PEP – Performance Evaluation Program

PSD – Prevention of Significant Deterioration

PTFE - Polytetrafluoroethylene

PUF – Polyurethane Foam

QA – Quality Assurance

QAPP – Quality Assurance Project Plan

QC – Quality Control

SAMWG – Standing Air Monitoring Working Group

DHEC – South Carolina Department of Health and Environmental Control

SLAMS – State and Local Air Monitoring Station

SPM – Special Purpose Monitor

STN – Speciation Trends Network

TBD - To be determined

TEOM – Tapered Element Oscillating Microbalance

TOT – Thermal Optical Transmittance

TSP – Total Suspended Particulate

US EPA – US Environmental Protection Agency

UV – Ultraviolet

WGS84 – World Geodetic System of 1984 revised in 2004

XRF – X-ray Fluorescence Spectroscopy

TABLE OF CONTENTS

Cover Photo: Sandhill monitoring site located in northeastern, Columbia, SC

Introduction

The South Carolina Department of Health and Environmental Control (Department) has operated an air quality monitoring network in South Carolina since 1959. Since that time, the network has continually evolved to meet the requirements and needs of the Department's Air Program. In 2007 the network was comprised of approximately 150 monitors and samplers at 48 sites.

In October, 2006, the United States Environmental Protection Agency (EPA) published revisions to the ambient monitoring regulations (71 FR 61236, October 17, 2006) requiring quality assurance, monitor designations, minimum requirements for both number and distribution of monitors among metropolitan statistical areas (MSAs), and probe siting changes. The regulation also specified the requirement for an annual monitoring network plan and periodic network assessment.

Monitor designations include the State and Local Air Monitoring Station (SLAMS), special purpose monitoring (SPM) and the National Core Monitoring Network (NCore). The SLAMS air monitoring network is specific for the criteria pollutants, those pollutants for which National Ambient Air Quality Standards (NAAQS) have been established. In addition to a SLAMS network, the air monitoring network includes special purpose monitors (SPM) for air toxics, particulate, mercury, criteria pollutants, precipitation and meteorology. The NCore network is designed to track long term trends for accountability of emissions control programs and health assessments that contribute to ongoing reviews of the NAAQS; support development of emissions control strategies through air quality model evaluation and other observations. The NCore network is required to measure ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), total reactive nitrogen, particulate matter 2.5 ($PM_{2.5}$)(both continuous and Federal Reference Method), $PM_{2.5}$ chemical speciation; coarse particulate matter ($PM_{10-2.5}$)(with a continuous Federal Equivalent Method); including temperature, wind speed, wind direction, and relative humidity.

This plan covers the eighteen month period from July 1, 2008 through December 31, 2009. This period includes a 6 month implementation period during which sites indicated as 'new' will be identified, secured and prepared for the installation of monitoring equipment. It is expected that any monitoring indicated as 'New' or 'to be established' will be installed, calibrated and operating in 2009 with the exception of some Ozone monitors which may begin operation at the start of the South Carolina Ozone Monitoring Season (April-October). Stakeholder groups have committed to assist in identifying and securing access to suitable locations. These efforts will continue in this and in subsequent monitoring plans as the Department continues to identify new monitoring needs.

The annual monitoring network plan, as required and described in 40 CFR Part 58.10, Annual Monitoring Network Plan and Periodic Network Assessment, must contain the following information for each monitoring station in the network:

- The Air Quality System (AQS) site identification number for existing stations.
- The location, including street address and geographical coordinates, for each monitoring station.
- The sampling and analysis method used for each measured parameter.
- The operating schedule for each monitor.
- Any proposal to remove or move a monitoring station within a period of eighteen months following the plan submittal.
- The monitoring objective and spatial scale of representativeness for each monitor.
- The identification of any sites that are suitable for comparison against the $PM_{2.5}$ NAAQS.
- The Metropolitan Statistical Area (MSA), Core-Based Statistical Area (CBSA), Combined Statistical Area (CSA) or other area represented by the monitor.

This document constitutes the South Carolina Air Monitoring Network Plan and is organized into two main parts:

Network Summaries: Presenting the total number of sites and monitors for the State. Also included is a listing of all proposed changes to the current network.

Air Monitoring **Station Description:** An outline of the designations, parameters, monitoring methods and the purpose for each monitor at the site.

The South Carolina Ambient Monitoring Network will be reviewed annually and planned changes will be described in this plan (and its annual revisions) and provided for public review and comment prior to submission to the EPA Region 4 Administrator.

2009 Monitoring Network Plan: Public Participation Opportunities

In anticipation of the need for an updated monitoring plan, heightened public interest and potential impact of the monitoring regulation changes, the Air Program once again solicited involvement from both internal (to the Department) and external workgroups.

The internal workgroup included representatives of all areas of the Air Program (Permitting, Planning, Modeling, Compliance, Outreach, and Monitoring) and included participation of potential data users from other areas of the Agency.

An external workgroup was convened with invited representatives of the business, environmental and health communities.

Other opportunities for public involvement include:

- A web page established for publication and access to draft and reference documents and announcements.[1]
- Meetings with the Greenville-Spartanburg-Anderson Stakeholders Group.
- Meetings with, a Georgetown Stakeholders Group.
- Availability of the proposed Ambient Monitoring Plan for public review and comment from June 3 to July 2, 2008. All recorded participants who registered in the outreach and discussion activities were notified when the plan became available for review.
- Meetings and conference calls with the stakeholder groups throughout the process.

The Department is committed to continuing the involvement and participation opportunities in the development of the annual revisions of the Monitoring Plan and the periodic assessments of the air quality surveillance system.

Network Operation

The primary responsibility for the operation of the South Carolina Ambient Monitoring Network (Monitoring Network) is assigned to the Division of Air Quality Analysis in the Bureau of Environmental Services (Division). The Division establishes, maintains and operates the sites and instruments that make up the network and performs the analysis of samples collected as part of routine monitoring or special projects. Data generated by the network for comparison to the National Ambient Air Quality Standards (NAAQS) is verified to be accurate and reported by the Division and stored in the national Air Quality System (AQS) database.

Criteria pollutant monitoring for the purpose of comparison to the NAAQS is performed using EPA designated Federal Reference Methods (FRM) or Federal Equivalent Methods (FEM) to ensure the precision and accuracy of the measurements across the air quality surveillance system.

Regular calibration and audits of the measurement systems are performed to verify that the instruments are operating correctly and data being collected is accurate. The quality assurance activities supporting the Monitoring Network meet or exceed the quality assurance requirements defined in 40 CFR Part 58 Appendix A (Quality Assurance Requirements for SLAMS, SPMs and PSD Air Monitoring).

Raw data is collected hourly from sites across the state and provided to internal data users (forecasters and data analysts) and to the AIRNow database for presentation to the public.

Before the data is submitted to AQS it is verified to be accurate through review of the instrument Quality Control (QC) and Quality Assurance (QA) performance documentation.

Instrument QA/QC alone is not sufficient to assure monitoring data quality. For this reason, the Department, in addition to periodic site assessments, has begun conducting additional visits of monitoring sites with involvement of stakeholder groups to enable comparison with applicable siting criteria. This process will continue until all monitors have been reviewed. The Department will continue working with the stakeholder groups and other interested parties through the implementation of this and subsequent annual plans, including the 2010 Five Year Assessment. Where concerns have been raised regarding probe siting criteria, the Department will work to correct deficiencies or to identify possible new/replacement sites as appropriate.

It is the Department's intent that all criteria pollutant monitors and samplers be sited and operated consistent with the requirements of 40CFR Part 58 and Appendices A (Quality Assurance), C (Methods), D (Network Design) and E (Probe Siting Criteria) and the data collected by these samplers and monitors is suitable for comparison to the NAAQS. The Department further intends to assure that the samplers and monitors comply with as many of the recommendations contained within the regulations and applicable guidance documents as is possible.

An element of the Quality System[1] employed by the Division is periodic assessments of systems and monitor performance. As the Primary Quality Assurance Organization for ambient air monitoring activities, the Division operates under the approved Environmental Quality Control Quality Assurance Management Plan, the Ambient Air Quality Monitoring Quality Assurance Project Plan and approved plans for specific projects. EPA Region 4 provides periodic Technical Systems Audits of sampling and analytical methods, network operation, data collection and reporting and Quality Assurance activities at their discretion or at the request of the Department's Air Program. Region 4 may conduct audits of any component of the operation of the network or quality management system. The Division also participates in the National Performance Audit Program (NPAP) and the Performance Evaluation Program (PEP) administered by EPA to provide independent audits of criteria pollutant monitoring and performance.

[1] The Quality System is the means by which the Department implements the quality management process through the Quality Assurance Management Plan for SC DHEC, September, 1998.

Station Description Content

Specific siting information for each site and monitor is stored in the EPA's AQS, the national ambient air database. The AQS Site Description includes the exact location of the site, local and regional population, and description of the site location, monitor types, and monitoring objectives. This site and monitor information is routinely updated whenever there is a change in site characteristics or pollutants monitored.

AQS is used as the primary repository for all South Carolina ambient monitoring data including site descriptions. All ambient monitoring data possible is stored in AQS, including non NAAQS parameters, ambient toxics, total suspended particulate and supporting quality assurance data.

Station Description

The network station descriptions contained in this document include the following information:

Site Description

The header for each site includes:

Site Name

The **Air Quality Control Region** (AQCR) name and number- AQCRs were established as part of the Clean Air Act

The **Core Based Statistical Areas** (CBSA) as defined by the US Census. (November 2004)[2]

AQS Site ID: The unique site identification number used in AQS in the form:

45-0cc-ssss
Where:
45 is the state identification code for SC,
cc is the county identification code and
ssss is the site identification code within the county

Location: Typically the street address of the site where available.

County: County in which the site is located

Coordinates: Listed in decimal degrees, Latitude (N) then Longitude (W) using WGS84 projection.

Date Established: The date when each existing monitoring station was established is shown in the description. For new stations proposed in this plan, a date is provided when it is expected for the station to be in operation. Individual monitors at a site may have differing start and stop dates.

Date of most recent **Site Evaluation:** Each monitoring station in the network is periodically visited to determine whether all probe exposure criteria required for monitors are met. If necessary, corrective action is scheduled to correct deficiencies.

Monitor Details

In a table associated with each site the parameters monitored at that site are listed along with descriptive information associated with that parameter.

Parameter

Criteria (compounds for which a National Ambient Air Quality Standard has been established), non Criteria and/or supporting parameters (primarily meteorological measurements) measured at the site are listed.

Scale

Each monitor or sampler in the monitoring network is described in terms of the approximate physical dimensions of the air parcel nearest the monitoring station throughout which pollutant concentrations are expected to be reasonably similar. This is most often referred to as the *Scale* of the monitor. Different pollutants monitored at the same location may represent different scales depending on the characteristics of the pollutant. Area dimensions or scales of representativeness used in the network description are:

(a) Microscale

Air volumes associated with area dimensions ranging from several meters up to about 100 meters.

(b) Middle scale

Areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.

[2] The US Census Bureau periodically adjusts CBSA names and boundaries. This plan uses the latest available revision.

(c) Neighborhood scale

Extended areas of a city that has relatively uniform land use with dimensions ranging from 0.5 to 4.0 kilometers.

(d) Urban scale

Citywide or equivalent rural areas with dimensions ranging from 4 to 50 kilometers.

(e) Regional scale

Areas ranging from 50 to hundreds of kilometers in diameter.

The scale of the monitors at each site is also represented by maps showing the maximum dimension of the respective scales centered on the site location. These are provided for reference only. The true representative area may best be described by a more irregular shape accounting for local sources and differing land use.

The representative scale of a monitor is closely associated with the objective of the monitoring.

Objective

The ambient monitoring network is designed to meet three primary objectives:

Provide air pollution data to the public in a timely manner. Near real-time data is made available on the internet through AIRNow and Air Quality Index (AQI) reporting and forecasting in the major metropolitan areas.

Support compliance with ambient air quality standards and emissions strategy development. Monitors are operated to measure concentrations for comparison to NAAQS and to provide information to aid the development of strategies to improve air quality.

Support air pollution research studies. Data from the monitoring networks support greater understanding of the impacts and effects of ambient air pollution.

Individual monitors within a monitoring network that support these basic objectives generally serve one or more of the following purposes:

- Determine highest concentrations of pollutants,
- Determine representative concentrations in areas of high population density,
- Determine impact on air quality of significant sources or source categories,
- Determine general background concentrations,
- Determine extent of regional pollutant transport, and
- Determine welfare-related impacts in more rural and remote areas (ex. visibility impairment and impacts to vegetation).

The design intent in siting stations is to correctly match the area represented by the sample of monitored air with the area dimensions most appropriate for the monitoring objective of the monitor. The relationship of appropriate scale to the six basic purposes are:

Monitoring Purpose	**Siting Scale**
Highest concentration	Micro, Middle, Neighborhood
Population	Neighborhood, Urban
Source impact	Micro, Middle, Neighborhood
General/background	Neighborhood, Urban, Regional
Regional transport	Urban, Regional
Welfare-related impacts	Urban, Regional

Monitor and sampler data is regularly reviewed to assure the assigned scale is correct and appropriate for the intended objective.

Designation

Required and long term criteria pollutant monitors described in the air quality monitoring network are designated **State and Local Air Monitoring Stations (SLAMS)**.

SLAMS: EPA requirements for air quality surveillance systems provide for the establishment of a network of monitoring stations designated SLAMS that measure ambient

concentrations of those pollutants for which standards have been established. These stations must meet requirements that relate to four major areas: quality assurance, monitoring methodology, sampling interval and siting of instruments and instrument probes.

Monitoring at some locations meets Air Program needs beyond that necessary for compliance with minimum requirements. **Special Purpose Monitors (SPM)** are operated to meet specific Air Program needs and may be long term or part of special studies designed to answer specific questions.

SPM: Monitors in the air quality surveillance network not designated SLAMS are Special Purpose Monitors. Special Purpose Monitors support investigations addressing complaints, areas and pollutants of concern, network refinement, modeling verification and compliance. These monitors are committed to investigation and projects as described in the associated Quality Assurance Project Plan (QAPP). They may be located as separate monitoring stations or be included at existing monitoring locations. Monitoring data will be reported to AQS where possible. Siting and probe exposure will conform to all requirements for SLAMS monitors whenever possible.

Both SLAMS and SPM data may be used in the reporting of an area Air Pollutant Quality Index.

Air Quality Index (AQI): The AQI is a method of reporting that converts concentration levels of pollution to a simple number scale of 0-500. Index reporting is required for all urban areas with a population exceeding 350,000. Intervals on the AQI scale are related to potential health effects of the daily measured concentration of the measured pollutants. All stations in a metropolitan area provide data for daily index reporting. Data collected from continuous monitors for Ozone and $PM_{2.5}$ monitors is collected hourly and reported as AQI maps on EPA's AIRNow website. A daily AQI is provided for the Greenville-Spartanburg, Columbia, and Charleston-North Charleston areas.

Probe Height

The monitor or sampler probe is the point where ambient air enters the analytical or sample collection system. Ideally, air would be sampled at approximately nose height, but due to operational, exposure and security considerations air may be sampled further from ground level. Proper probe height is specified in the monitoring regulations (typically between 2 and 15 meters) and is checked as part of the periodic site evaluations

Analysis Methods

All sampling and analytical procedures used for comparison of ambient concentrations of criteria pollutants to the NAAQS will use designated Federal Reference (FRM) or equivalent (FEM) methods. Where appropriate for specific monitoring objectives, well characterized non-equivalent methods may be used.

- **Particulate Matter 10 microns in size (PM_{10})**

PM_{10} samplers operated by the Department are designated as either FRM or FEM samplers and are operated according to the requirements set forth in 40 CFR Part 50 and 40 CFR Part 58. Intermittent samplers collect a 24-hr sample no less than every sixth day on a quartz filter. The filter is conditioned and weighed before and after the sample run. The gain in weight in relation to the volume of air sampled is calculated in micrograms per cubic meter ($\mu g/m^3$). The quartz filters are equilibrated before each weighing for a minimum of 24 hours at a 20-23°C mean temperature and a 30-40% mean relative humidity.

Continuous PM_{10} samplers provide 24-hour concentration measurements every day. During sampling, ambient air passes through an inlet designed to pass only particles smaller than 10 microns in diameter. After exiting the inlet, the sample stream is sent through a mass transducer to determine instantaneous and total flow. Particulate in the sample stream passes through a Teflon-coated glass fiber filter. This filter is weighed every two seconds. The difference between the current filter weight and the previous weight gives the total mass of the collected particulate for that period. The mass concentration is computed by dividing the total mass gained by the flow rate. Data is stored locally on redundant on site data acquisition

systems and recovered hourly by an automated central data acquisition system.

- **Particulate Matter 2.5 microns in size ($PM_{2.5}$)**

All $PM_{2.5}$ samplers operated by the Department are designated FRM samplers. Manual samplers are operated per the requirements set forth in 40 CFR Part 50, Appendix L. Samples are collected on 46.2 mm PTFE filters over a 24-hour sampling period. Air flow through the filter is maintained at 16.7 liters per minute. The flow rate must not vary more than +/-5% for five minutes over a 24-hour sample period at actual ambient temperature and pressure. Samples should be retrieved within 96 hours of the end of the sample run and should be kept cool (4°C or cooler) during transit to meet the thirty-day limit for final weighing.

The PTFE filters are equilibrated and weighed before and after the sample run for a minimum of 24 hours at a controlled atmosphere of 20-23°C mean temperature and 30-40% mean relative humidity. Filters are used within thirty days of initial weighing. Filters must be re-weighed within thirty days of the end of the sample run if kept at 4°C or cooler. The gain in weight in relation to the volume of air sampled is calculated in $\mu g/m^3$.

Continuous $PM_{2.5}$ monitors provide hourly measurements for AQI reporting but do not provide concentration data currently suitable for comparison to the NAAQS. During monitoring, ambient air passes through an inlet system designed to pass only particles smaller than 2.5 microns in diameter. After exiting the inlet, the sample stream is sent through a mass transducer to determine instantaneous and total flow. Particulate in the sample stream passes through a Teflon-coated glass fiber filter. This filter is weighed every two seconds. The difference between the current filter weight and the previous weight gives the total mass of the collected particulate for that period. The mass concentration is computed by dividing the total mass gained by the flow rate. Data is stored locally on redundant data acquisition systems and recovered hourly by an automated central data acquisition system.

<u>$PM_{2.5}$ Speciation sampling and analysis</u>

In addition to operating $PM_{2.5}$ samplers that allow measurement of only $PM_{2.5}$ mass concentration, the Department also operates $PM_{2.5}$ speciation samplers that collect samples that are analyzed to determine the chemical makeup of $PM_{2.5}$. Samples are collected on a set of three cartridges over a 24-hour sampling period. The individual cartridges contain denuders and filters designed to efficiently capture the major components of $PM_{2.5}$.

After collection, the samples are shipped in ice chests to the EPA contract laboratory for analysis. At the laboratory the samples are analyzed using thermal optical analysis (for carbon), ion chromatography and x-ray fluorescence (for metals) to determine the presence and concentration of specific compounds. Sample results are stored in AQS.

- **Sulfur dioxide**

Instruments used to continuously monitor sulfur dioxide levels in the atmosphere employ the FEM Ultraviolet (UV) fluorescence method. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by an automated central data acquisition system.

Calibration of these instruments is done dynamically using EPA protocol gas mixtures containing a known concentration of sulfur dioxide in nitrogen. This gas is diluted to give varying known concentrations of sulfur dioxide. These known concentrations are supplied to the instrument, which is adjusted so that the instrument output corresponds with the specific concentrations. Calibration curves are prepared for each instrument and each measurement is automatically compared to this curve before entry into the data acquisition system.

- **Carbon Monoxide**

Continuous monitoring for carbon monoxide is performed by use of the FRM non-dispersive infrared correlation method. Data is stored locally on redundant data acquisition systems and recovered hourly by the Division automated central data acquisition system.

Calibration of the instrument is done dynamically using EPA Protocol gas mixtures containing a known concentration of carbon monoxide in air. The gas is diluted to give varying known concentrations of carbon monoxide. These known concentrations are supplied to the instrument, which is adjusted so that the instrument output corresponds with the specific concentrations. Calibration curves are prepared for each instrument and each measurement is automatically compared to this curve before entry into the data acquisition system.

- **Ozone**

Ozone is monitored using the FEM Ultraviolet (UV) photometry method. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by the Division automated central data acquisition system.

Monitors are routinely calibrated using portable ozone transfer standards. Calibration curves are prepared for each instrument and each measurement is automatically compared to this curve before entry into the data acquisition system.

- **Nitrogen Dioxide**

The FRM chemiluminescence and UV methods are used in monitoring the nitrogen dioxide level in the ambient air. The continuous data output from the instrument is stored locally on redundant data acquisition systems and recovered hourly by an automated central data acquisition system.

Calibration of the instrument is done dynamically using EPA protocol gas mixtures containing a known concentration of nitric oxide in nitrogen. The gas is diluted to give varying known concentrations of nitric oxide. An ozone generator and converter are used to convert Nitric Oxide (NO) to Nitrogen Dioxide (NO_2). These known concentrations are supplied to the instrument, which is adjusted so that the instrument output corresponds with the specific concentrations. Calibration curves are prepared for each instrument and each measurement is automatically compared to this curve before entry into the data acquisition system.

- **Lead**

Lead concentrations are determined from the analysis of total suspended particulate collected using high volume particulate samplers as described in 40 CFR §50 Appendix G. Particulate samples are acid extracted to dissolve the metals. The lead content is determined using Inductively Coupled Plasma (ICP) spectrophotometry.

Sampling Frequency

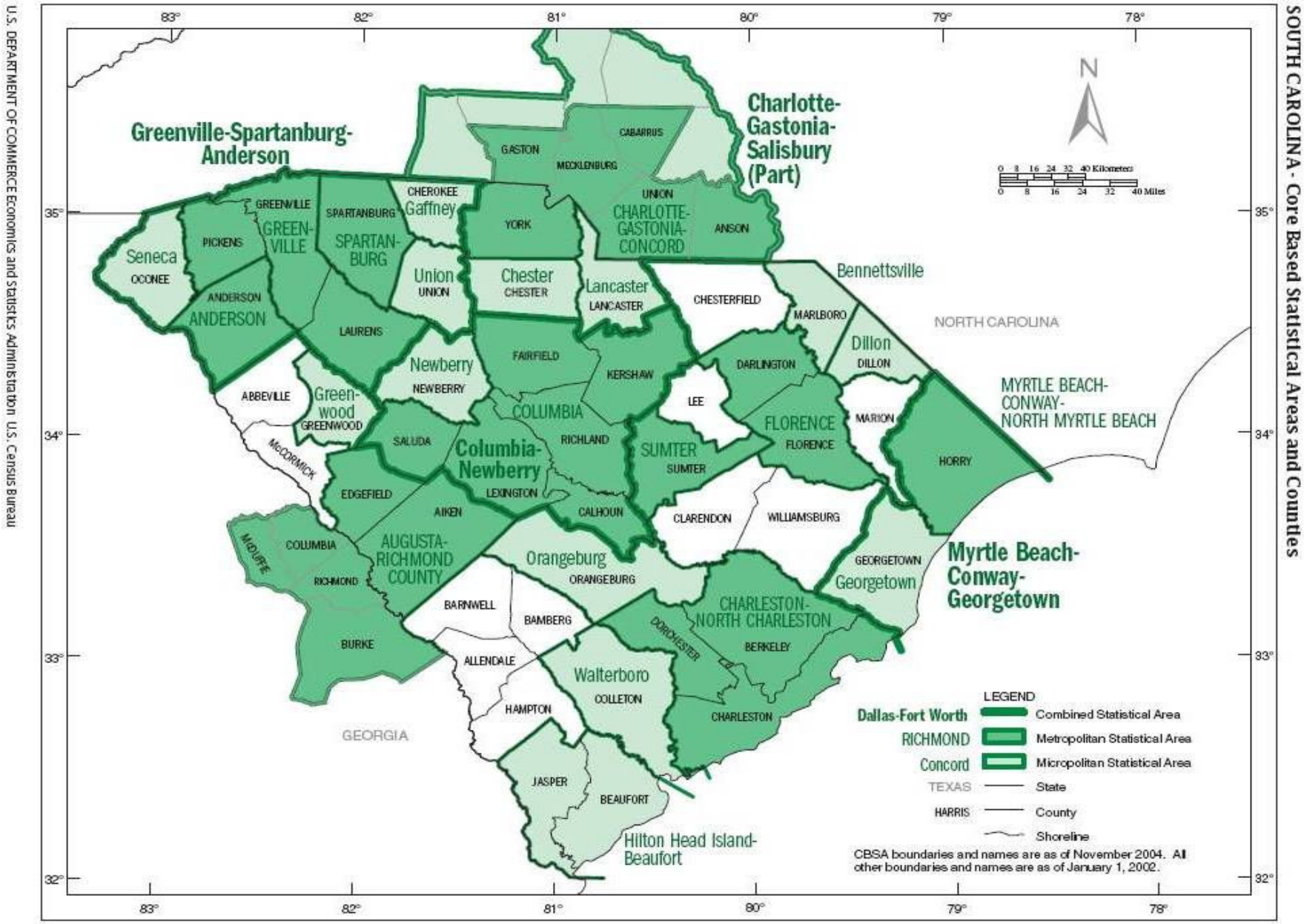
Measurements of the parameters related to air quality are performed using sampling and continuous monitoring. Sampling frequency is the indicator of how often a measurement is made and reported.

Sampling typically involves collection of a sample over a period (typically 24 hours, midnight to midnight) and delivery of the sample to the laboratory for preparation and analysis. Samples are collected every day (1:1), every third day (1:3), every sixth day (1:6) and for some projects, every twelfth day (1:12) depending on the Data Quality Objectives necessary for the project. Results of the analysis are reported as averages for the period. The EPA publishes 1:3 and 1:6 day sampling schedules used nationwide and by the Monitoring Network.[b]

Monitoring typically uses on-site analyzers that continuously sample the air and measure the pollutant of interest. Results of the analysis are reported as hourly averages.

Changes for 2009

Any planned changes in parameters monitored, the configuration or operations at the site planned for 2009 are described herein and summarized in the Summary of 2009 Network Changes. Unless otherwise indicated, changes at a site, including the beginning of new monitoring activity, will be effective January 1, 2009. Ozone monitoring for 2009at new or special project sites may start at the beginning of the ozone monitoring season (April-October).



South Carolina Core Based Statistical Areas and Counties

Network Summaries

2009 Air Monitoring Stations

Region	Sites	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP/Lead	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOC	Metals
Greenville-Spartanburg-Anderson CSA	11	7	5	1	1	0	5	2	1	1	1	1	0	0	0	1	2	0	0
Columbia CSA	9	4	1	0	4	0	3	2	1	0	1	1	2	3	2	1	4	0	0
Charlotte-Gastonia-Salisbury CSA	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Myrtle Beach-Conway-Georgetown CSA	4	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Augusta-Richmond County MSA	4	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Charleston-North Charleston MSA	5	3	2	2	1	0	2	2	2	1	0	1	0	0	0	0	1	0	0
Florence MSA	3	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Rest of State	3	1	2	1	2	0	3	0	0	0	0	1	1	1	0	1	2	1	0
TOTALS	40	19	12	4	11	0	19	6	4	2	2	4	3	4	2	3	11	1	0

This summary table presents the proposed elements of the South Carolina Ambient Air Monitoring Network after realignment of the monitors as proposed in this plan.

$PM_{2.5}$ Samplers Suitable for comparison to the $PM_{2.5}$ National Ambient Air Quality Standards

Sites using Federal Reference Method	Site suitable for comparison to annual standard?	Site suitable for comparison to the 24-Hour standard?	Site Description Page number
Greenville CHD	Yes	Yes	13
Greenville ESC	Yes	Yes	16
Taylors	Yes	Yes	15
West View	Yes	Yes	19
Long Creek	Yes	Yes	17
Chesterfield	Yes	Yes	63
Sneed	Yes	Yes	59
FAA	Yes	Yes	55
CPW	Yes	Yes	56
Parklane	Yes	Yes	32
Irmo	Yes	Yes	27
Bates House	Yes	Yes	33
Sandhill	Yes	Yes	34
Aiken Particulate Study	TBD*	TBD*	49
New Spartanburg	TBD*	TBD*	22
New Florence	TBD*	TBD*	60
* Sites not yet established but expected to be suitable for comparison to primary and secondary annual and 24-hour standards.			

$PM_{2.5}$ and Ozone Design Values 2005 – 2007

This section presents the latest ambient air quality data for currently operating monitoring sites throughout South Carolina. Only $PM_{2.5}$ and Ozone are presented below. All other parameters were well below the level of the standards in 2007.

$PM_{2.5}$ Design Values 2005 – 2007			
Site ID	Site Name	Annual ($\mu g/m^3$)	Daily ($\mu g/m^3$)
45-037-0001	Trenton	13.1	30
45-073-0001	Longcreek	11.2	29
45-045-0008	Greenville Health Dept	15.3	31
45-045-0009	Taylors	14.7	32
45-083-0010	West View Elementary School	14.2	32
45-063-0008	Irmo	14.6	32
45-079-0007	Parklane	13.7	30
45-079-0019	Bates House (USC)	14.2	32
45-025-0001	Chesterfield	12.4	28
45-041-0002	H L Sneed Middle School	12.6	29
45-019-0048	Charleston FAA Beacon	12.0	27
45-019-004	Charleston Public Works	11.2	25

Ozone Design Values 2005 – 2007		
Site ID	Site Name	Design Value (ppm)
45-001-0001	Due West	0.081
45-003-0003	Jackson	0.077
45-015-0002	Bushy Park	0.064
45-019-0046	Cape Romain	0.074
45-021-0002	Cowpens	0.073
45-025-0001	Chesterfield	0.075
45-029-0002	Ashton	0.074
45-031-0003	Pee Dee	0.076
45-037-0001	Trenton	0.070
45-073-0001	Long Creek	0.072
45-077-0002	Clemson CMS	0.081
45-079-0007	Parklane	0.080
45-079-0021	Congaree Bluff	0.073
45-079-1001	Sandhill	0.082
45-083-0009	NSFS	0.083
45-091-0006	York	0.079

Summary of 2009 Network Changes

Anderson MSA

Implementation of the 2008 Monitoring Plan is being continued.

Greenville MSA

Implementation of the 2008 Monitoring Plan is being continued. Discontinue $PM_{2.5}$ and Ozone monitoring at Clemson CMS (45-077-0002). Discontinue meteorological monitoring, TSP and PM_{10} sampling at Greenville CHD (45-045-0008). Discontinue meteorological monitoring at Taylors (45-045-0009).

Spartanburg MSA

Implementation of the 2008 Monitoring Plan is being continued.

Charlotte-Gastonia-Concord MSA

No changes planned for 2009.

Augusta-Richmond County MSA

Implementation of the 2008 Monitoring Plan is being continued.

Columbia MSA

Implementation of the 2008 Monitoring Plan is being continued. $PM_{2.5}$ sampling at Parklane (45-079-0018) has been discontinued. Monitoring scale of representativeness at Olympia (45-079-0007) has been changed from microscale to neighborhood due to changes in traffic patterns around the site.

Sumter MSA

No changes planned for 2009.

Florence MSA

Implementation of the 2008 Monitoring Plan is being continued.

Myrtle Beach-Conway-North Myrtle Beach MSA

Implementation of the 2008 Monitoring Plan is being continued.

Charleston-North Charleston MSA

No changes planned for 2009.

Georgetown Micropolitan Statistical Area

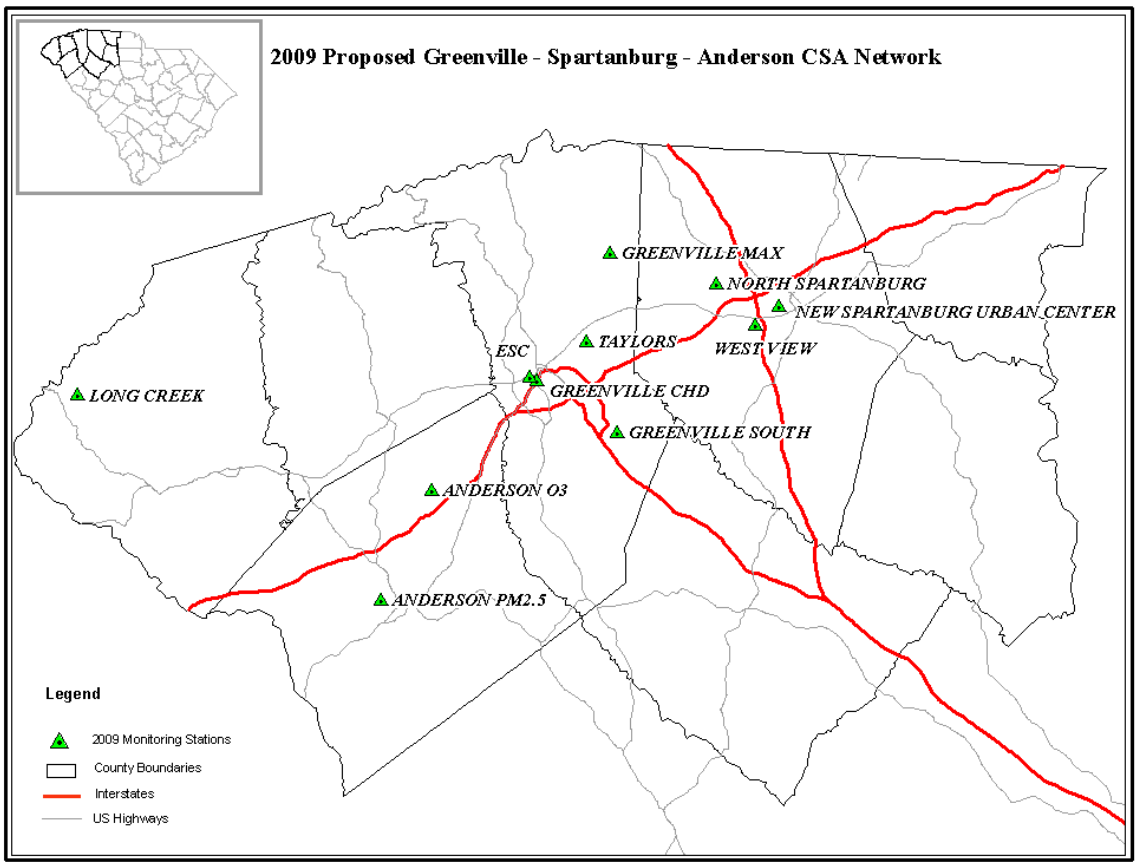
Implementation of the 2008 Monitoring Plan is being continued.

Remainder of State

Implementation of the 2008 Monitoring Plan is being continued. Discontinue Ozone monitoring at Cowpens (45-021-0002). Discontinue TSP sampling at Chesterfield (45-025-0001).

Site Descriptions

Greenville-Spartanburg-Anderson CSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOCs	Metals
45-045-0008	Greenville County Health Department*	●	○	○					○	○	○	○							
45-045-0009	Taylors*	●●																	
45-045-0015	Greenville ESC	○	○		●			○									○		
45-073-0001	Long Creek	●	○				○	○								○	○		
45-083-0009	North Spartanburg Fire Station #2						●												
45-083-0010	West View	●																	
45-007-0004	Anderson Library		○																

AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOCs	Metals
45-007-0005	Big Creek						●												
Not Available	New Spartanburg Urban Center	○	●																
45-45-1003	Famoda Farms						○												
Not Available	Southeast Greenville County						○												
	TOTAL	7	5	1	1	0	5	2	1	1	1	1	0	0	0	1	2	0	0

○ SPM
● SLAMS
●● indicates duplicate QA samplers
*see individual site description for site/parameter retention

Greenville County Health Department
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-045-0008
Location: 91 Wakefield Street, Greenville, SC, 29601
County: Greenville
Coordinates: +34.838814, -82.402918
Date Established: April 6, 1989
Site Evaluation: The most recent site evaluation was conducted on 03/30/2005.

This monitoring site is located on the grounds of the Greenville County Health Department. The Greenville County Health Department (CHD) site is located approximately 2 km (1 mile) south of downtown Greenville. The area represented by the site is dominated by area sources. The Greenville Health Department site has samplers for $PM_{2.5}$ and TSP. This site also has had continuous monitors for NO_2, SO_2 and CO, Light Absorbing Carbon (LAC), sulfate, and $PM_{2.5}$. The site supports the required collocated $PM_{2.5}$ continuous monitor for the MSA. Data from the continuous monitor cannot be used for comparison to the $PM_{2.5}$ NAAQS. The sample inlets are 23.2 meters from the nearest road. This site was one of three sites representing the Greenville-Spartanburg Monitoring Planning Area for $PM_{2.5}$.

The Department has established a new site (Greenville ESC) in the downtown Greenville area which better meets suggested $PM_{2.5}$ siting criteria. Once the data has been demonstrated to meet the monitoring objectives, the Department will relocate some or all of the monitoring activity to the more appropriate location.

The criteria pollutants NO_2, and CO will continue to be monitored at this location to provide fine particulate and ozone precursor data and data to support modeling. Facilities wishing to make modifications or build new plants are required to model for criteria pollutants, and the Greenville data will provide a conservative estimate of ambient concentrations in the Upstate.

Changes for 2009

The Department intends to eliminate meteorological monitoring, TSP and PM_{10} sampling at this site.

This is a carry-over item from the 2008 Monitoring Plan. Within the next 12 months, the Department intends to gather one years worth of data from the Greenville ESC site, evaluate and determine if relocation is appropriate.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	4.0	FRM Gravimetric	1:1

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure/ General Background	SPM	4.5	TEOM-FDMS (includes measurement of volatile $PM_{2.5}$)	Continuous
Speciated $PM_{2.5}$	Neighbor hood	Population Exposure	SPM	4.5	STN Protocol	1:6
Nitrogen Dioxide	Neighbor hood	Population Exposure/ Max Precursor Impact	SPM	4.0	FRM Chemiluminescence	Continuous
Carbon Monoxide	Middle	Max Precursor Impact	SPM	4.0	FRM Nondispersive Infrared Photometry	Continuous
Sulfate	Neighbor hood	Population Exposure / General Background	SPM	4.5	Catalytic thermal reduct/Pulsed fluorescence	Continuous
Black Carbon	Neighbor hood	Population Exposure / General Background	SPM	4.5	Optical absorption	Continuous

Taylors
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA
AQS Site ID: 45-045-0009
Location: 405 Brushy Creek Road
County: Greenville
Coordinates: +34.899141, -82.313070
Date Established: May 1, 1999
Site Evaluation: The most recent site evaluation was conducted on 04/07/2005

This monitoring site is in a residential area of the town of Taylors on the grounds of a city fire station. The site is approximately 6 kilometers northeast of the Greenville Health Department monitoring site. The area represented by this sampler is dominated by area sources. The Taylors site was originally established as the location of one of two $PM_{2.5}$ Core samplers representing the Greenville-Spartanburg Monitoring Planning Area. The Taylors site has an FRM $PM_{2.5}$, a STN protocol $PM_{2.5}$ speciation sampler and a collocated $PM_{2.5}$ FRM used for determination of method precision. The sample inlets are 27.0 meters from the nearest road.

Changes for 2009

The Department intends to eliminate meteorological monitoring at this site.

This is a carry-over item from the 2008 Monitoring Plan. The monitoring of CO, NO_2, $PM_{2.5}$, SO_2 and LAC established as part of the Greenville $PM_{2.5}$ special studies were discontinued at the end of 2007. The Department intends to relocate monitoring from this site to an improved monitoring location in the Greenville urbanized area within the next 18 months. Monitoring at Taylors will be discontinued when the procedures for relocating a site have been completed.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	4.4	FRM Gravimetric	1:1
Collocated $PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	4.4	FRM Gravimetric	1:6

Greenville Employment Security Commission (ESC)
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-045-0015
Location: 101 Perry Avenue
County: Greenville
Coordinates: +34.853985, -82.412754
Date Established: 04/11/2008
Site Evaluation: n/a

With the cooperation of local government and stakeholders, the Department established an additional site in the downtown Greenville area. Once the data has been demonstrated to meet the monitoring objectives, the Department will recommend to EPA relocation of some or all of the monitoring activity from Greenville CHD.

The site was established as a $PM_{2.5}$ population exposure / welfare related impacts sampler on 4/11/2008. The area represented by this sampler is dominated by area sources.

The sample inlets are 15.0 meters from the nearest road.

Changes for 2009

The Department intends to complete the implementation of winds speed and direction monitoring at this site.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure / Welfare Related Impacts	SPM	4.4	FRM Gravimetric	1:1
$PM_{2.5}$	Neighbor hood	Population Exposure	SPM	4.0	TEOM	Continuous
PM_{10}	Neighbor hood	Population Exposure	SLAMS	4.0	FEM TEOM	Continuous
Sulfur Dioxide	Neighbor hood	Population Exposure	SPM	4.0	FEM UV fluorescence	Continuous
Wind Speed / Direction		Local Conditions		10	Instruments for wind speed and wind direction	Continuous

Long Creek

Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA
AQS Site ID: 45-073-0001
Location: Round Mt. Fire Tower
County: Oconee
Coordinates: +34.805261, -83.237700
Date Established: August 1, 1983
Site Evaluation: The most recent site evaluation was conducted on 02/18/2005.

The Long Creek monitoring site is located on Round Mountain in northwest Oconee County. The site was established as a general-background monitor on 08/01/1983.
The Long Creek site was established as part of the Southern Oxidant Study. It provides a unique vantage for monitoring the impacts of transported pollutants. The area represented by this sampler is dominated by area sources. Long Creek has samplers for $PM_{2.5}$ and acid rain and has continuous monitors for O_3, $PM_{2.5}$, SO_2, and precipitation. The sample inlets are 11.0 meters from the nearest road.

Due to the importance of measuring region-wide SO_2, $PM_{2.5}$ and ozone concentrations, the unique location and collocated monitoring activity, the Department has determined that current monitoring at this site should be continued.

Changes for 2009

The Department intends to work with the land-owner to improve site exposure due to recent tree growth around the site.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Urban	General / Background	SLAMS	2.6	FRM Gravimetric	1:3
$PM_{2.5}$	Urban	General / Background	SPM	4.3	TEOM 50°C	Continuous
Ozone	Regional	General / Background	SPM	4.3	FEM Ultraviolet Photometry	Continuous
Sulfur Dioxide	Regional	Regional Transport	SPM	4.3	FEM UV fluorescence	Continuous
Acid Rain	Neighbor hood	Trends	SPM	1.5	IC	1 week samples Tue-Tue
Precipitation		Local Conditions		1.5	Tipping bucket	Continuous

North Spartanburg Fire Station #2
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Spartanburg MSA
AQS Site ID: 45-083-0009
Location: 1556 John Dodd Road
County: Spartanburg
Coordinates: +34.988706, -82.075802
Date Established: April 4, 1990
Site Evaluation: The most recent site evaluation was conducted on 06/08/2006.

This monitoring site is located in rural Spartanburg County, northwest of the city of Spartanburg. This site was established as a maximum ozone concentration monitor for the Greenville-Spartanburg-Anderson urban area on 04/04/1990. North Spartanburg is sited to represent urban scale concentrations of ozone. This monitor is designated SLAMS and it fulfills the requirement for a maximum concentration site for the Spartanburg MSA. The area represented by this monitor is dominated by area sources.

The sample inlets are 85.0 meters from the nearest road.

Changes for 2009

This is a carry-over item from the 2008 Monitoring Plan. No changes are planned in the monitoring. Improvements to the immediate area around the site will be pursued to improve exposure and security.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max Ozone Concentration	SLAMS	3.6	FEM Ultraviolet Photometry	Continuous

West View
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Spartanburg MSA
AQS Site ID: 45-083-0010
Location: 4198 Copper Line Road
County: Spartanburg
Coordinates: +34.926839, -82.005211
Date Established: November 10, 1998
Site Evaluation: The most recent site evaluation was conducted on 03/29/2006.

The West View site is located in Spartanburg County at the West View Elementary School, west of the City of Spartanburg. The site was established as a $PM_{2.5}$ population exposure sampler on 11/10/1998 as one of the two Core samplers placed to represent the Greenville-Spartanburg Monitoring Planning Area. West View was sited to represent neighborhood scale. The area represented by this sampler is dominated by area sources.

The sample inlets are 99.0 meters from the nearest road.

Redefinition of MSA boundaries, the requirement for a maximum exposure/population oriented site and requirement for collocation of continuous monitoring for reporting to the public necessitate relocation of this monitor.

Changes for 2009

This is a carry-over item from the 2008 Monitoring Plan. A new monitoring site appropriate for the MSA objectives and monitoring requirements will be established in Spartanburg.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.6	FRM Gravimetric	1:1

Anderson Library
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Anderson MSA
AQS Site ID: 045-007-0004
Location: Anderson County Library
County: Anderson
Coordinates: n/a
Date Established: Operational by 2008
Site Evaluation: n/a

No picture available.

While there are no minimum requirements for $PM_{2.5}$ monitoring in the Anderson MSA, the Department will operate a SPM continuous $PM_{2.5}$ monitor in the City of Anderson to document population exposure to fine particulate. With the cooperation of local government and stakeholders, the Department is seeking to establish a new site in the City of Anderson to measure $PM_{2.5}$ in populated areas.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SPM	2.0	TEOM	Continuous

Big Creek
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA/ Anderson MSA
AQS Site ID: 45-007-0005
Location: West of Williamston
County: Anderson
Coordinates: n/a
Date Established: Operational by 2008
Site Evaluation: n/a

No picture available.

With the cooperation of local government and stakeholders, the Department is seeking to establish a new site in order to satisfy the minimum requirements for ozone monitoring in the Anderson MSA. This site has been established northeast of the City of Anderson to in the area expected to have the maximum ozone concentrations for the MSA.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max Ozone Concentration / Upwind Background	SLAMS	4.0	FEM Ultraviolet Photometry	Continuous

New Spartanburg Urban Center
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Spartanburg MSA
AQS Site ID: 45-083-XXXX
Location: To Be Determined
County: Spartanburg
Coordinates: n/a
Date Established: Operational in 2008
Site Evaluation: n/a

No picture available.

With the cooperation of local government and stakeholders, the Department is seeking to establish a new site in the downtown Spartanburg area to meet the 40 CFR Part 58 Appendix D requirements for objective and collocated continuous monitoring and reporting. The site will be operated concurrently with the Westview site. If the data meets the monitoring objectives, the Department will recommend to EPA relocation of all of the monitoring activity to the more appropriate location.

Changes for 2009

This is a carry-over item from the 2008 Monitoring Plan. The site will be operational in 2008.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Highest Concentration	SPM		FRM Gravimetric	1:1
$PM_{2.5}$	Neighbor hood	Highest Concentration	SLAMS		TEOM	Continuous

Famoda Farms
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-045-1003
Location: Tigerville
County: Greenville
Coordinates: n/a
Date Established: Operational in 2008
Site Evaluation: n/a

No picture available.

This site will serve as one of the two required ozone monitors in the Greenville MSA. It is expected that this site will represent the maximum ozone concentration for the Greenville MSA.

This monitor will be designated SLAMS but will be part of a special study that will be conducted throughout the MSA with the goal of better understanding the spatial variability of ozone concentrations in the area with the intent to identify the most appropriate sites to meet SLAMS monitoring objectives for the MSA and CBSA.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max Ozone Concentration	SPM		FEM Ultraviolet Photometry	Continuous

Southeast Greenville County
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-045-xxxx
Location: Near Simpsonville
County: Greenville
Coordinates: n/a
Date Established: Site will be operational in 2008
Site Evaluation: n/a

No picture available.

This site will serve as one of the two required ozone monitors in the Greenville MSA. It is expected that this site will represent the population exposure in a growing area of the MSA in the Simpsonville area.

This monitor will be designated SLAMS but will be part of a special study that will be conducted throughout the MSA with the goal of better understanding the spatial variability of ozone concentrations in the area with the intent to identify the most appropriate sites to meet SLAMS monitoring objectives for the MSA and CBSA.

Changes for 2009

No changes are planned for 2009.

Monitors:

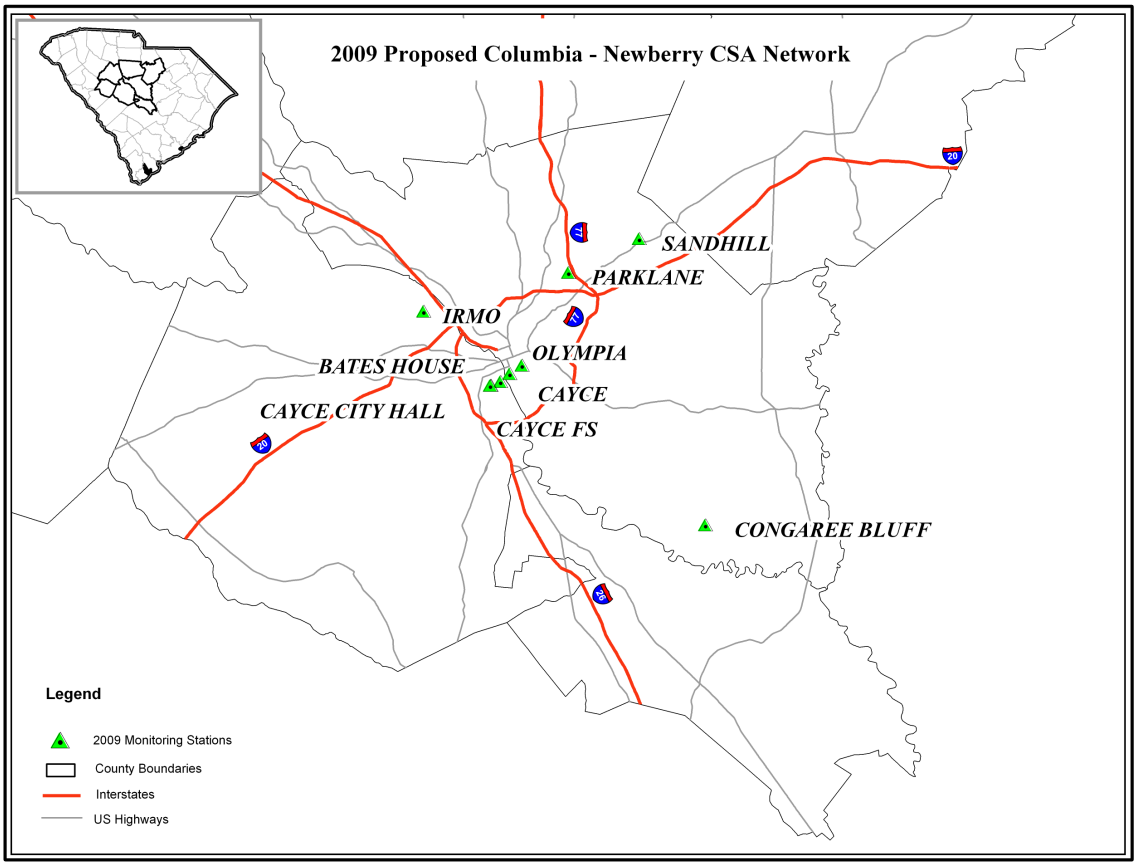
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Population Exposure	SPM		FEM Ultraviolet Photometry	Continuous

Greenville MSA Ozone Study
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
County: Greenville
Date Established: 2008

In order to better understand the spatial distribution of ozone concentrations in the Upstate, data from existing monitoring sites (Clemson and North Spartanburg) and planned required MSA monitors (Anderson County, Northeast and Southeast Greenville county) will be supplemented by an additional site, most likely in central Pickens county for the 2008 Ozone season. The SPM monitors will be operated for no more than two ozone seasons with the primary goal of identifying the most appropriate sites for the required MSA SLAMS.

The Department will develop a project plan for the monitoring and data analysis activity to better define the scope of the study prior to implementation. All data will be reported to AirNOW for generation of area Air Quality maps and to support air quality forecasting.

Columbia-Newberry CSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOC	Metals
45-063-0008	Irmo	●	●					O			O	O	O	O					
45-063-0009	Cayce CMS				O												O		
45-063-0010	Cayce City Hall				O														
45-079-0007	Parklane						●							O			O		
45-079-0018	Olympia				O														
45-079-0019	Bates House (USC)	●●			●														
45-079-0020	State Hospital												O	O					
45-079-0021	Congaree Bluff						O	O							OO	O	O		
45-079-1001	Sandhill	O					●		O								O		
	TOTAL	4	1	0	4	0	3	2	1	0	1	1	2	3	2	1	4	0	0

O SPM ●● indicates duplicate QA monitors
● SLAMS *see individual site description for site/parameter retention

Irmo

Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-063-0008
Location: 200 Leisure Lane
County: Lexington
Coordinates: +34.051017, -81.154950
Date Established: 04/07/1989
Site Evaluation: The most recent site evaluation was conducted on 02/25/2005.

This site is located in Lexington County in the town of Irmo. The area represented by the site is dominated by area sources. The Irmo site has a sampler for $PM_{2.5}$, and continuous monitors for SO_2, sulfate, black carbon and $PM_{2.5}$. Additionally, this site has a sampler collecting carbonyl samples on a 1:6 schedule. The sample inlets are 43.4 meters from the nearest road. The Irmo site supports the required collocated $PM_{2.5}$ continuous monitor for the MSA. Data from the continuous monitor cannot be used for comparison to the $PM_{2.5}$ NAAQS.

Changes for 2009

This is a carry-over item from the 2008 Monitoring Plan. The Department requested an EPA audit of the site (conducted in February 2008) and is currently awaiting the final report. The Department intends to explore alternative site locations and confirm the representative scale of monitoring in the area.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighborhood	Population Exposure	SLAMS	5.0	FRM Gravimetric	1:1
Continuous $PM_{2.5}$	Neighborhood	Population Exposure	SLAMS	4.6	TEOM 30°C	Continuous
SO_2	Neighborhood	Source Oriented	SPM	3.4	FEM UV fluorescence	Continuous
Sulfate	Neighborhood	Population Exposure / General Background	SPM	5.1	Catalytic thermal reduction / Pulsed fluorescence	Continuous
Black Carbon	Neighborhood	Population Exposure / General Background	SPM	4.0	Optical absorption	Continuous
Carbonyls	Neighborhood	Population Exposure	SPM	3.9	HPLC Ultraviolet	1:6

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
					Absorption	
SVOC	Neighborhood	Population Exposure	SPM	3.9	PUF/GCMS	1:6

Cayce CMS
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-063-0009
Location: 609 Frink Street
County: Lexington
Coordinates: +33.973389, -81.052675
Date Established: 10/26/1991
Site Evaluation: The most recent site evaluation was conducted on 05/08/2006.

This site is located in Lexington County in the city of Cayce. The PM_{10} is a Special Purpose Monitor located in an urban and center city. This site was established as a source oriented monitor in an area where there is a concentration of industrial particulate sources. Cayce CMS represents middle scale concentrations of PM_{10} in an area dominated by point sources and dust reentrained by mobile sources. The sample inlets are 4.9 meters from the nearest road.

Particulate concentration at this site is influenced by multiple local industrial sources and experienced some of the highest daily average concentrations of PM_{10} in the state in 2006. The data collected at this location is intended for use by the Department, local government and industry to enable quick response to the impacts of local activities to minimize emissions. While not representative of population exposure, the continued availability of the data is important to the efforts of the Department and local stakeholders to protect air quality in nearby communities.

Changes for 2009

No changes are planned for 2009

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Middle	Source Oriented	SPM	4.3	TEOM Gravimetric	Continuous
Wind Speed / Direction		Local Conditions		10	Instruments for wind speed and wind direction	Continuous

Cayce City Hall
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-063-0010
Location: To Be Determined
County: Lexington
Coordinates: n/a
Date Established: 12/06/2007
Site Evaluation:

This site is a replacement for the Cayce Fire Station TSP site, changing parameter from TSP to PM_{10} and changing the measurement method to a continuous monitor from a 1:6 frequency sampler.

This site was established as a population exposure monitor to support local investigations and scale delineation. Cayce City Hall is in an area dominated by area sources.

The sample inlet is 32.0 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Neighborhood	Population Exposure	SPM	2.4	TEOM	Continuous

Olympia
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0018
Location: Heyward Street and Williams Street
County: Richland
Coordinates: +33.982253, -81.040235
Date Established: 10/10/1991
Site Evaluation: The most recent site evaluation was conducted on 02/03/2006.

This site was scheduled to be discontinued in 2007 has been retained to support an on going Columbia PM study and in response to community interest.

This site was established as a source oriented monitor on 10/10/1991 to measure impacts on residential areas from a nearby quarry. Olympia is an area dominated by point sources.

The sample inlet is 9.1 meters from the nearest road.

Changes for 2009

The scale of the PM_{10} monitor was changed from microscale to neighborhood due to a change in traffic patterns near the site.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Neighborhood	Source Oriented	SPM	4.5	TEOM	Continuous

Parklane
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0007
Location: 8311 Parklane Rd.
County: Richland
Coordinates: +34.093959, -80.962304
Date Established: 04/03/1980
Site Evaluation: The most recent site evaluation was conducted on 03/22/2007.

The Parklane site is located in north central Richland County. Parklane represents neighborhood and larger scale concentrations. The site is in a suburban setting dominated by area sources. The Parklane site has samplers for acid rain and has continuous monitoring for ozone and precipitation. Additionally, the site has a sampler for semi-volatile compounds. The sample inlets are 57.0 meters from the nearest road.

The site was originally placed to provide downwind, edge of the Columbia urban area population exposure measurements. Since it was established, commercial and residential areas have spread further to the northeast. The site also provides a facility for training and equipment evaluation convenient to the Columbia DHEC air laboratory.

Changes for 2009

$PM_{2.5}$ sampling at this site has been discontinued.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Neighbor hood	Max Ozone Concentration	SLAMS	4.4	FEM Ultraviolet Photometry	Continuous
SVOC	Neighbor hood	Population Exposure	SPM	2.3	PUF-GC/MS	1:6
Precipitation		Local Conditions		1.5	Tipping Bucket	Continuous

Bates House (USC)
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0019
Location: 323 S. Bull Street
County: Richland
Coordinates: +33.991509, -81.024141
Date Established: 11/24/1998
Site Evaluation: The most recent site evaluation was conducted on 03/17/2003.

The Bates House (USC) site is located in Richland County within the University of South Carolina (USC)-Columbia campus. This site intended to measure neighborhood scale concentrations in the urban and center city. The area represented by this site is dominated by area sources. The Bates House site has a sampler for $PM_{2.5.}$ Additionally, this site has collocated precision sampling for $PM_{2.5}$. The sample inlets are 28.8 meters from the nearest road.

A continuous PM_{10} sampler was installed in late 2005 as an element of the USC Particulate Study. The data is intended to provide more detailed information to establish baseline and measurement of potential impacts of a new biomass facility. That project is expected to be concluded in mid-2008.

The site has collocated wind measurement equipment (3m) operated by the USC Geography department.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.3	FRM Gravimetric	1:1
Collocated $PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.3	Gravimetric	1:6
PM_{10}	Neighbor hood	Population Exposure	SLAMS	3.1	TEOM	Continuous

State Hospital
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0020
Location: 2100 Bull Street
County: Richland
Coordinates: +34.015494, -81.034179
Date Established: 01/07/1999
Site Evaluation: The most recent site evaluation was conducted on 02/09/2006.

The State Hospital site is located in Columbia near the intersection of Elmwood Avenue and Bull Street on the grounds of the State Hospital. This site is in an urban area and is dominated by area and mobile sources. State Hospital has samplers for carbonyls and semi-volatile organic compounds. The sample inlets are 10.0 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Carbonyls	Neighborhood	General / Background	SPM	3.9	HPLC Ultraviolet Absorption	1:6
SVOC	Neighborhood	General / Background	SPM	5.0	PUF-GC/MS	1:6

Congaree Bluff

Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-0021
Location: 1850 South Cedar Creek Road
County: Richland
Coordinates: +33.814680, -80.781135
Date Established: 12/27/1999
Site Evaluation: The most recent site evaluation was conducted on 04/11/2005.

The Congaree Bluff site is located in southern Richland County. The site is located in a rural setting within the boundaries of the Congaree National Park. The area represented by this site is dominated by area sources. The Congaree Bluff site has monitors for ozone, SO_2, gaseous mercury and precipitation Congaree Bluff also has samplers for mercury deposition and acid rain. The sample inlets are 191.7 meters from the nearest road.

The Congaree Bluff monitoring continues a data record begun in 1981 with the establishment of the Congaree Swamp site (45-079-1006). The original site was established in cooperation with the Department of the Interior and the support of the General Assembly to provide long term monitoring in this unique area.

The national park service collects wind data on a collocated 30 meter wind tower.

Changes for 2009

There are no changes planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	General / Background	SPM	4.4	FEM Ultraviolet Photometry	Continuous
SO_2	Urban	General / Background	SPM	4.4	FEM UV Fluorescence	Continuous
Mercury (vapor)	Urban	Source Oriented	SPM	4.4	Cold Vapor Atomic Fluorescence	Continuous
Mercury Deposition	Urban	Source Oriented	NADP-MDN	1.5	MDN protocol	Weekly samples
Acid Rain	Regional	Regional Transport	SPM	1.5	IC	1 Week Tue-Tue
Precipitation		Local Conditions		1.5	Tipping Bucket	Continuous

Sandhill Experimental Station
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
AQS Site ID: 45-079-1001
Location: 900 Clemson Road
County: Richland
Coordinates: +34.131262, -80.868318
Date Established: 01/01/1959
Site Evaluation: The most recent site evaluation was conducted on 07/01/2002.

The Sandhill Experimental Station site is located in northeastern Richland County, downwind from the Columbia metropolitan area. This site was established as a downwind monitor on 05/02/1979. Sandhill is sited to represent urban scale concentrations of ozone. This monitor is a SLAMS site and is located in a rural setting to conduct background surveillance. The area represented by this monitor is dominated by area sources.

The sample inlets are 33.5 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

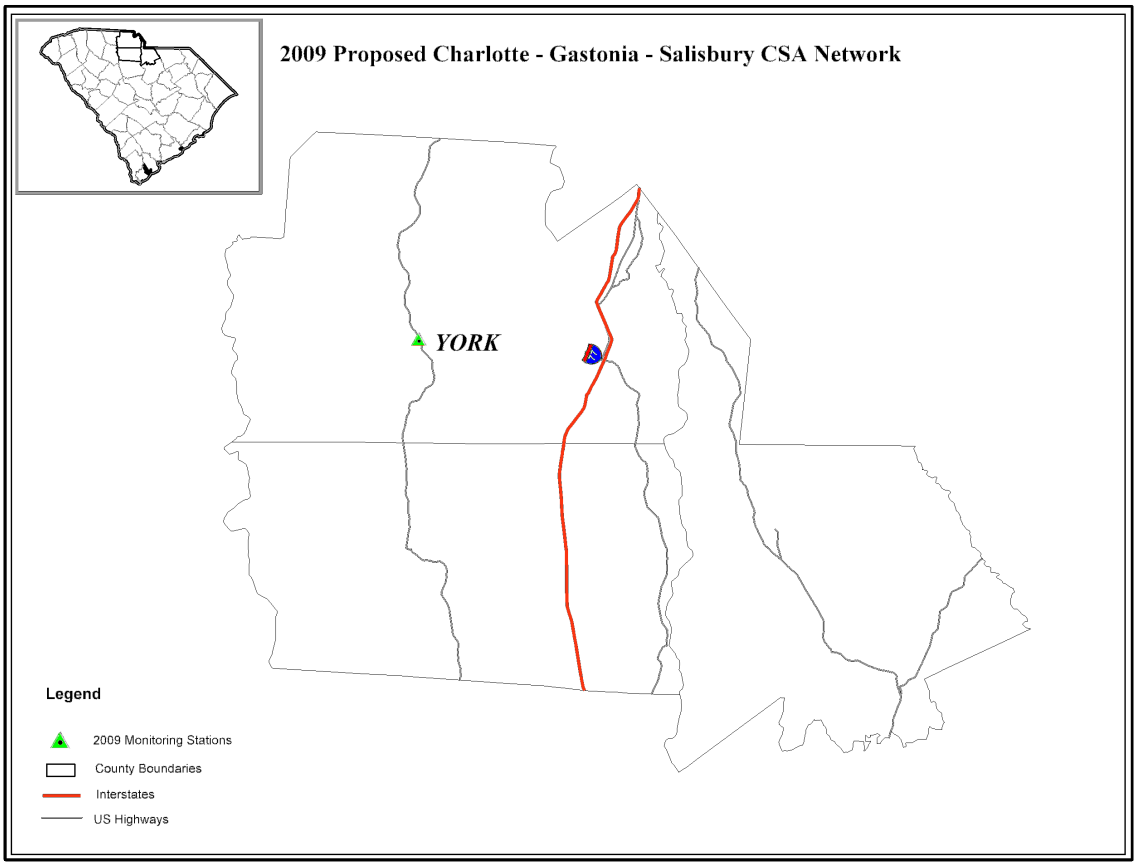
Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	General / Background	SPM	2.5	FRM Gravimetric	1:3
Ozone	Urban	Max Ozone Concentration	SLAMS	4.3	FEM Ultraviolet Photometry	Continuous
NO_2	Urban	General / Background Max Precursor Emissions Impact	SPM	4.3	FRM Chemiluminescence	Continuous
Wind Speed / Direction		Local Conditions		10.0	Instruments for wind speed and wind direction	Continuous

Columbia MSA Ozone Study
Air Quality Control Region: Columbia (200)
CSA/MSA: Columbia-Newberry CSA / Columbia MSA
County:

In order to better understand the spatial distribution of ozone concentrations in the Midlands, data from existing monitoring sites (Congaree Bluff, Parklane and Sandhill) will be supplemented by additional sites in appropriate areas in the MSA indicated by models and other available tools. This project, planned for the 2010 Ozone season, will build on the experience gained in the Greenville MSA Ozone Study to improve the ozone monitoring network for the Midlands. The SPM monitors will be operated for no more than two ozone seasons with the primary goal of identifying the most appropriate sites for the required MSA SLAMS.

The Department will develop a project plan for the monitoring and data analysis activity to better define the scope of the study prior to implementation. All data will be reported to AirNOW for generation of area Air Quality maps and to support air quality forecasting.

Charlotte-Gastonia-Salisbury CSA (part)



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOCs	Metals
45-021-0002	York CMS						O										O		
	TOTAL	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0

O SPM
● SLAMS
●● indicates duplicate QA monitors
*see individual site description for site/parameter retention

York CMS
Air Quality Control Region: Metropolitan Charlotte (167)
CSA/MSA: Charlotte-Gastonia-Salisbury CSA / Charlotte-Gastonia-Concord MSA
AQS Site ID: 45-091-0006
Location: 2316 Chester Highway (US 321)
County: York
Coordinates: +34.935817, -81.228409
Date Established: 03/30/1993
Site Evaluation: The most recent site evaluation was conducted on 06/13/2006.

The York CMS site is located in south-central York County. The site was established as an upwind/downwind location on 03/20/1993 representing urban scales impacts near the Charlotte urban area. This monitor is a Special Purpose site in a rural setting to support Charlotte-Rock Hill reporting and forecasting. The area represented by this monitor is dominated by area sources.

The sample inlets are 171.4 meters from the nearest road.

This site is important for forecasting ozone concentrations in the Charlotte Metropolitan area. Additionally, the long historical record and location of the site make the data useful to both North and South Carolina Air Programs.

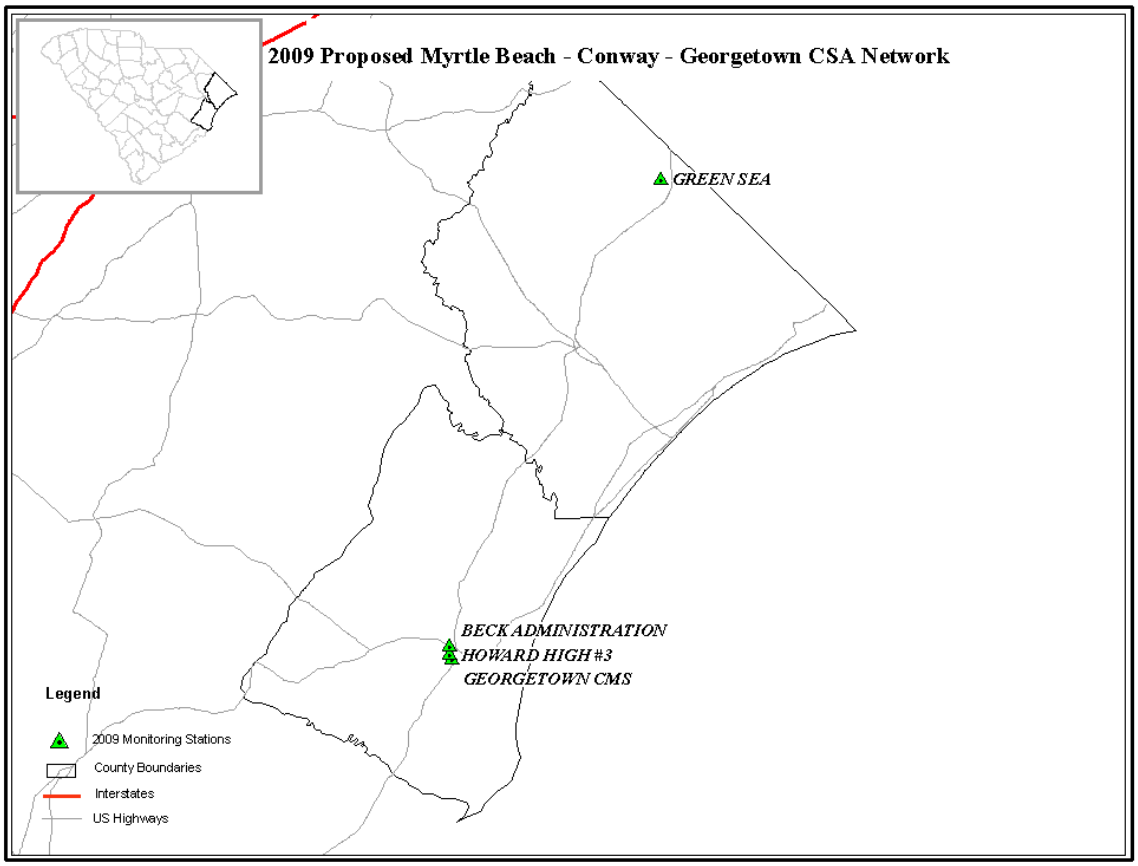
Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Upwind Background	SPM	3.3	FEM Ultraviolet Photometry	Continuous
Wind Speed / Direction		Local Conditions		10.0	Instruments for wind speed, wind direction.	Continuous

Myrtle Beach-Conway-Georgetown CSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOCs	Metals
45-043-0006	Georgetown CMS				O												O		
45-051-0003	Green Sea						O												
45-043-0011	Howard High School #3				O														
45-043-0012	Beck Administration				O														
	TOTAL	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	1	0	0

O SPM
● SLAMS
●● indicates duplicate QA monitors
*see individual site description for site/parameter retention

Georgetown CMS
Air Quality Control Region: Georgetown (204)
CSA/MSA: Myrtle Beach-Conway-Georgetown CSA
AQS Site ID: 45-043-0006
Location: 1369 Dock Street
County: Georgetown
Coordinates: +33.362014, -79.394251
Date Established: 10/25/1972
Site Evaluation: The most recent site evaluation was conducted on 04/02/2007.

The Georgetown CMS site is located in Georgetown County. This site was established as a source-oriented ambient surveillance monitor on 01/03/1975. Georgetown CMS is located in an industrial area dominated by point sources and is not intended to represent typical population exposures. The area represented by this monitor is dominated by point sources. The sample inlets are 21 meters from the nearest road.

As the site is located in very close proximity to several local sources (e.g., truck parking, material handling, and road dust), and not located near inhabited buildings or locations where the general public can be expected to be exposed to the concentration measured, its data is not appropriate for comparison to the NAAQS. The Georgetown CMS site has continuous monitoring for meteorology and PM_{10}.

Previous monitoring in the city residential areas at the Maryville, Howard High and Winyah sites have confirmed this location is representative of middle scale.

Changes for 2009

This is a carry-over item from the 2008 Monitoring Plan. Consistent with original intended purpose of this monitor, alternative methods of continuous particulate monitoring are being investigated and evaluated for potential installation as a long term monitoring tool. When this alternative method is selected and installed the continuous PM_{10} monitor will be removed from this site. If an alternative method is not identified, the use of special purpose monitoring for particulates will be investigated to meet monitor needs related to local industrial sources in this limited area.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Middle	Source Oriented Highest Concentration	SPM	4.0	FEM TEOM	Continuous
Wind Speed/ Direction		Local Conditions		10.0	Instruments for wind speed and wind direction	Continuous
Precipitation		Local Conditions			Tipping Bucket	Continuous

Howard High School #3
Air Quality Control Region: Georgetown (204)
CSA/MSA: Myrtle Beach-Conway-Georgetown CSA
AQS Site ID: 45-043-0011
Location: To Be Determined
County: Georgetown
Coordinates: n/a
Date Established:
Site Evaluation:

No picture available.

This site is a replacement site for Howard High #2.

The Howard High School #3 site is located in Georgetown County in the city of Georgetown. Monitoring was established in the Howard Adult center campus as a source-oriented, highest concentration, ambient surveillance monitor in April, 1970. The monitor is representative of middle scale concentrations. The site is located in an urban and center city setting. The area represented by this site is dominated by point sources. The Howard High School #3 will have continuous PM_{10} monitoring.

Changes for 2009

This site will be established.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Neighborhood	Population Exposure Highest Concentration	SPM	2.0	TEOM	Continuous

Beck Administration Center
Air Quality Control Region: Georgetown (204)
CSA/MSA: Myrtle Beach-Conway-Georgetown CSA
AQS Site ID: 45-043-0012
Location: To Be Determined
County: Georgetown
Coordinates: n/a
Date Established:
Site Evaluation:

No picture available.

The Beck Administration Center site is located in Georgetown County in the city of Georgetown. This site was established with cooperation from local stakeholders to represent background concentrations of PM_{10} and provide context for other monitoring in the town of Georgetown. The Beck Administration Center will have continuous PM_{10} monitoring.

Changes for 2009

This site will be established.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Neighborhood	Background	SPM	3.0	TEOM	Continuous

Green Sea
Air Quality Control Region: Georgetown (204)
CSA/MSA: Myrtle Beach-Conway-Georgetown CSA / Myrtle Beach-Conway-North Myrtle Beach MSA
AQS Site ID: 45-051-0003
Location: Green Sea
County: Horry
Coordinates: n/a
Date Established: 2008
Site Evaluation: n/a

No picture available.

Ozone concentrations in the coastal plain along the northeast border of the state have not been monitored. The Myrtle Beach-Conway-North Myrtle Beach MSA is one of the fastest growing areas of the state. Monitoring data from this area will be useful to planners, modelers and forecasters. To support these needs, the Department will conduct ozone monitoring to determine if additional or long term measurement is appropriate.

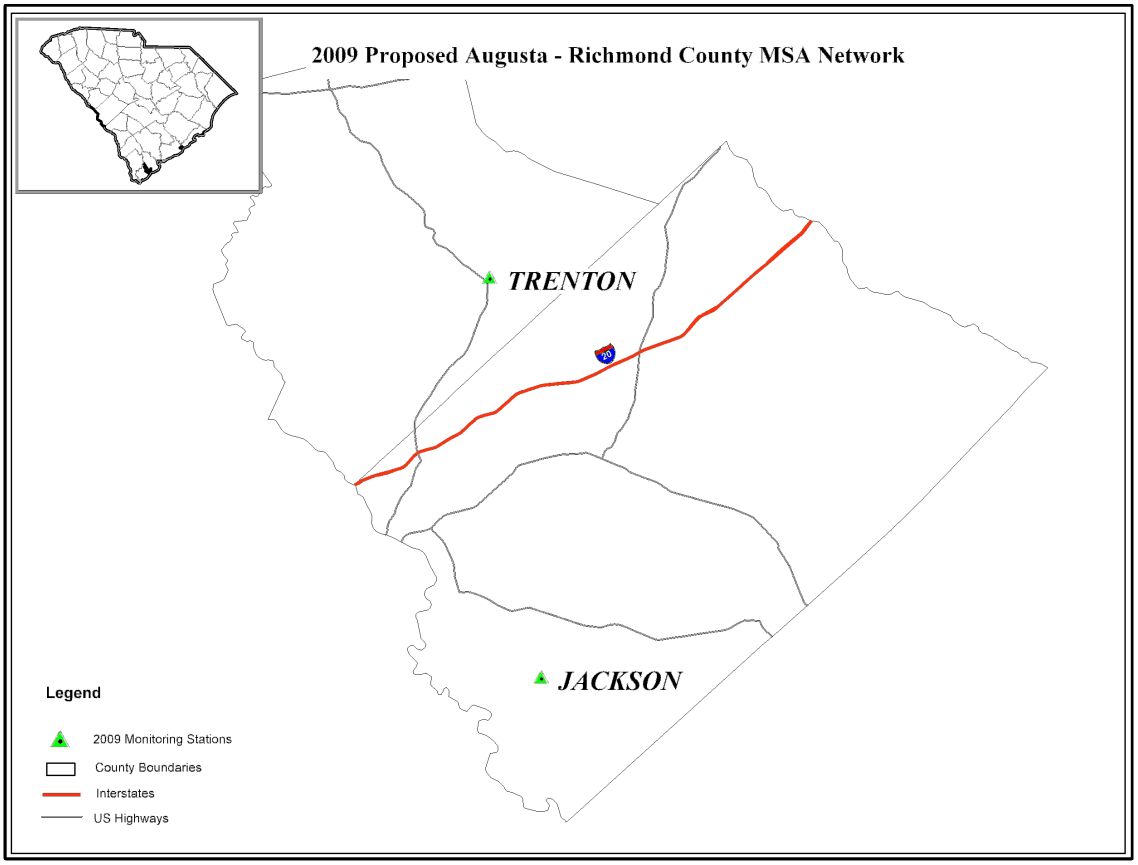
Changes for 2009:

This is a carry-over item from the 2008 Monitoring Plan. A SPM ozone monitor, operating for no more than two consecutive Ozone seasons, will be established near the North Carolina-South Carolina border to meet the needs of the data users.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Regional Transport	SPM	4.0	FEM Ultraviolet Photometry	Continuous

Augusta-Richmond County MSA (part)



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOCs	Metals
45-003-0003	Jackson Middle School						○												
45-037-0001	Trenton	○	○				●												
Not Available	North Aiken County						●												
Not Available	Aiken Particulate Study	○																	
	TOTAL	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

○ SPM
● SLAMS
●● indicates duplicate QA monitors
*see individual site description for site/parameter retention

Jackson Middle School
Air Quality Control Region: Augusta-Aiken (053)
CSA/MSA: Augusta-Richmond County MSA
AQS Site ID: 45-003-0003
Location: 8217 Atomic Road (Indian Drive – School)
County: Aiken
Coordinates: +33.342226, -81.788731
Date Established: 10/24/1985
Site Evaluation: The most recent site evaluation was conducted on 06/142006.

The Jackson Middle School site is located in southwestern Aiken County at the Jackson middle school. The site is designed to represent the urban concentration scale. Jackson ozone is a SPM located in a suburban setting to monitor concentrations upwind of the Augusta urbanized area. The area represented by this site is dominated by area sources.

The sample inlet is 138.8 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Upwind Background	SPM	4.0	FEM Ultraviolet Photometry	Continuous

Trenton
Air Quality Control Region: Augusta-Aiken (053)
CSA/MSA: Augusta-Richmond County MSA
AQS Site ID: 45-037-0001
Location: 660 Woodyard Road (Hwy 121)
County: Edgefield
Coordinates: +33.739963, -81.853635
Date Established: 03/28/1980
Site Evaluation: The most recent site evaluation was conducted on 03/18/2003.

The Trenton site is located in southeastern Edgefield County. Trenton was originally placed as the Aiken/Augusta area downwind expected ozone maximum site and represented urban scale concentrations. This site is in a rural setting dominated by area sources. The Trenton site has both FRM and continuous monitoring for $PM_{2.5}$. The sample inlets are 39.4 meters from the nearest road.

Changes for 2009
This is a carry-over item from the 2008 Monitoring Plan. In order to better characterize ozone concentrations in the South Carolina portion of the MSA, the Department will establish a site closer to North Augusta in Aiken County. Monitoring at this site will be will be discontinued when the procedures for relocating monitors have been completed.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Urban	Regional Transport	SPM	4.5	Gravimetric	1:3
Continuous $PM_{2.5}$	Urban	Regional Transport	SPM	1.8	TEOM 50°C	Continuous
Ozone	Urban	Downwind Highest Concentration	SLAMS	3.6	FEM Ultraviolet Photometry	Continuous

North Aiken County
Air Quality Control Region: Augusta-Aiken (053)
CSA/MSA: Augusta-Richmond County MSA
AQS Site ID: 45-003-xxxx
Location: To Be Determined in northern Aiken County near North Augusta
County: Aiken
Coordinates: n/a
Date Established: To be established in 2009
Site Evaluation: n/a

No picture available.

This site is intended to be a replacement for the existing Trenton site.

Changes for 2009

This is a carry-over item from the 2008 Monitoring Plan.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max Ozone Concentration	SLAMS		FEM Ultraviolet Photometry	Continuous

Aiken Particulate Study
Air Quality Control Region: Augusta-Aiken (053)
CSA/MSA: Augusta-Richmond County MSA
AQS Site ID: 45-003-xxxx
Location: To Be Determined near North Augusta and Aiken
County: Aiken
Coordinates: n/a
Date Established: 2009
Site Evaluation: n/a

No picture available.

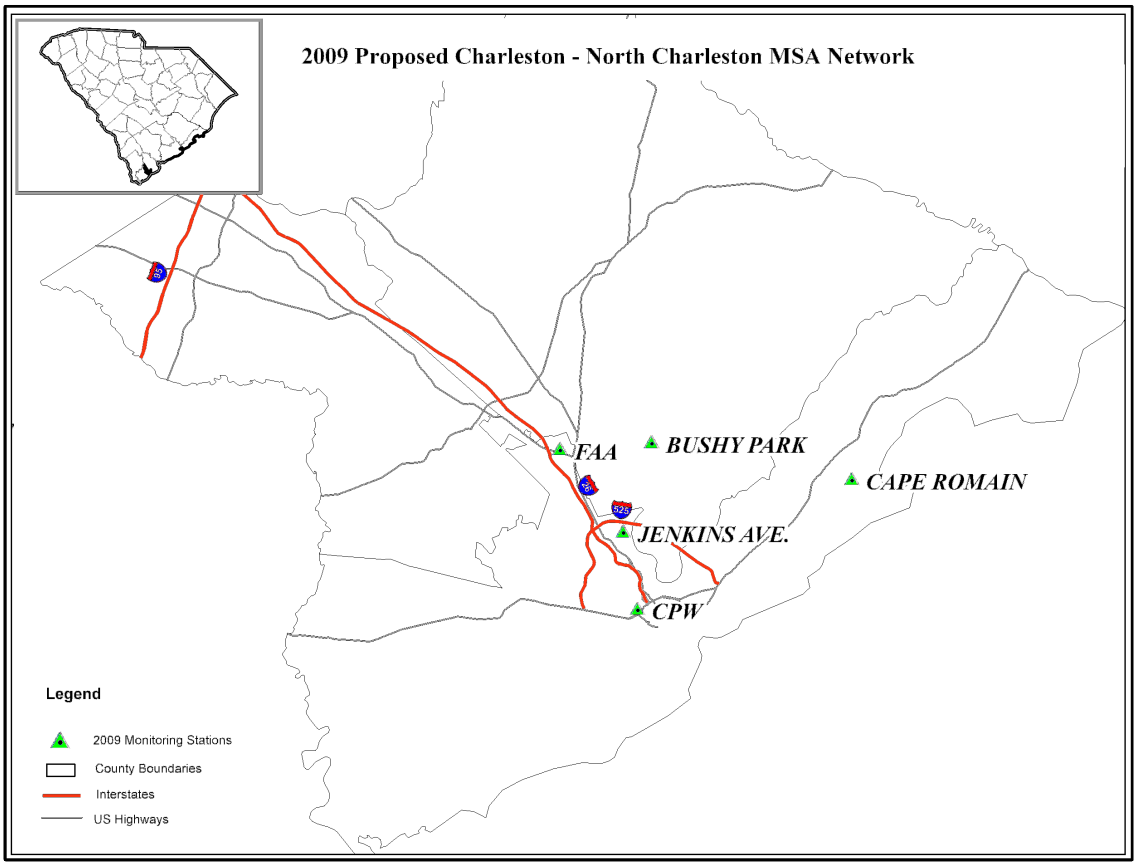
This special study will provide measurement and an opportunity for comparison of population oriented concentrations between the two Aiken county population centers and $PM_{2.5}$ concentrations measured in the adjacent city of Augusta, Georgia.

Changes for 2009
This is a carry-over item from the 2008 Monitoring Plan. Siting and installation of a suitable SPM site will be established in the North Augusta area to characterize population exposure to $PM_{2.5}$.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighborhood	Population Exposure	SPM		FRM Gravimetric or TEOM	1:3 or Continuous

Charleston-North Charleston MSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOCs	Metals
45-015-0002	Bushy Park Pump Station						●												
45-019-0003	Jenkins Ave. Fire Station				●			○	○										
45-019-0046	Cape Romain		○	○			●	○	○	○		○					○		
45-019-0048	FAA	○○																	
45-019-0049	Charleston Public Works	●	●	●															
	TOTAL	3	2	2	1	0	2	2	2	1	0	1	0	0	0	0	1	0	0

○ SPM
● SLAMS
●● indicates duplicate QA monitors
*see individual site description for site/parameter retention

Bushy Park Pump Station
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-015-0002
Location: 1530 Bushy Park Road (Goose Creek)
County: Berkeley
Coordinates: +32.987252, -79.936700
Date Established: 06/20/1978
Site Evaluation: The most recent site evaluation was conducted on 03/17/2003.

The Bushy Park Pump Station site is located in southeastern Berkeley County downwind from the Charleston urban area. Bushy Park is sited to represent urban concentration scales. The area represented by this site is dominated by area sources. Ozone is the only pollutant measured at the Bushy Park site. The sample inlets are 11.3 meters from the nearest road.

Changes for 2009
No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max Ozone Concentration	SLAMS	3.0	FEM Ultraviolet Photometry	Continuous

Jenkins Ave. Fire Station
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-019-0003
Location: 4830 Jenkins Ave.
County: Charleston
Coordinates: +32.882289, -79.977538
Date Established: 02/14/1969
Site Evaluation: The most recent site evaluation was conducted on 03/02/2005.

The Jenkins Ave. Fire Station site is located in the city of North Charleston. Jenkins Ave. Fire Station is sited to represent neighborhood scale concentrations. The site is located in an urban and center city setting to conduct source-oriented ambient surveillance. The area represented by this site is dominated by area sources. The Jenkins Ave. Fire Station site monitors PM_{10}, SO_2 and NO_2. The sample inlets are 9.6 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
PM_{10}	Neighborhood	Highest Concentration	SLAMS	4.3	FEM TEOM	Continuous
SO_2	Neighborhood	Population Exposure	SPM	4.3	FEM UV Fluorescence	Continuous
NO_2	Neighborhood	Highest Concentration Source Oriented	SPM	4.3	FRM Chemilumines cence	Continuous

Cape Romain

Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-019-0046
Location: 390 Bulls Island Road (Awendaw)
County: Charleston
Coordinates: +32.941023, -79.657187
Date Established: 07/11/1983
Site Evaluation: The most recent site evaluation was conducted on 06/03/2005.

The Cape Romain site is located in Charleston County at the Cape Romain National Wildlife Refuge (NWR) near Moores Landing.

The Cape Romain NWR is a Class I area about 20 miles northeast of Charleston. The majority of the Refuge area is offshore extending from Bull Island 20 miles to Cape Romain. The Refuge is bordered on the west by the Intracoastal Waterway. Inland are large tracts of forests with scattered residences. Several miles inland a primary coastal route, US Highway 17, parallels the coast, but there is little development along the section of highway that is close to the Refuge.

The area represented by this monitor is dominated by area sources. The Cape Romain site has samplers for $PM_{2.5}$ speciation, and continuous monitors for CO, SO_2, NO_2, ozone, black carbon, meteorological parameters and $PM_{2.5}$. The sample inlets are 18 meters from the nearest road.

The Cape Roman site is collocated with the Interagency Monitoring of Protected Visual Environments (IMPROVE) sampling site and nearby monitoring performed by other agencies includes precipitation chemistry and mercury deposition. The site has been used for multiple interagency and regional air monitoring projects.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Urban	General / Background	SPM	3.0	TEOM 30°C	Continuous
Ozone	Regional	General / Background	SLAMS	4.0	FEM Ultraviolet Photometry	Continuous
SO_2	Regional	Source Oriented	SPM	4.0	FEM UV Fluorescence	Continuous
NO_2	Regional	General / Background	SPM	4.0	FRM Chemiluminescence	Continuous
CO	Urban	General Background	SPM	4.0	FRM Nondispersive Infrared	Continuous
Black Carbon	Regional	General / Background	SPM	4.0	Optical absorption	Continuous
Speciated $PM_{2.5}$	Urban	Visibility	SPM	3.0	IMPROVE protocol	1:3
Wind Speed / Direction		Local Conditions		10.0	Instruments for wind speed, and direction and precipitation	Continuous

FAA
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-019-0048
Location: 2670 Elms Plantation Blvd
County: Charleston
Coordinates: +32.980254, -80.065010
Date Established: 04/09/1999
Site Evaluation: The most recent site evaluation was conducted on 05/04/2006.

The Charleston FAA Beacon site is located in Charleston County approximately five miles northwest of the Charleston International Airport, near Charleston Southern University. FAA is sited to represent neighborhood scale concentrations. This site is located in a suburban area dominated by area sources. This site has collocated $PM_{2.5}$ samplers to allow determination of method precision. The sample inlets are 50 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SPM	2.3	FRM Gravimetric	1:1
Collocated $PM_{2.5}$	Neighbor hood	Population Exposure	SPM	2.3	FRM Gravimetric	1:6

Charleston Public Works
Air Quality Control Region: Charleston (199)
CSA/MSA: Charleston-North Charleston MSA
AQS Site ID: 45-019-0049
Location: 360 Fishburne Street
County: Charleston
Coordinates: +32.790984, -79.958694
Date Established: 11/20/1998
Site Evaluation: The most recent site evaluation was conducted on 04/24/2006.

The Charleston Public Works (CPW) site is located on the western side of the Charleston peninsula near downtown Charleston. This site is sited to represent neighborhood scale concentrations in an urban and center city to conduct population-oriented surveillance. The area represented by this site is dominated by area sources. In addition to the $PM_{2.5}$ sampler, CPW has a $PM_{2.5}$ speciation sampler that is the South Carolina station in the national Speciation Trends Network (STN). The CPW site supports the required collocated $PM_{2.5}$ continuous monitor for the MSA. Data from the continuous monitor cannot be used for comparison to the $PM_{2.5}$ NAAQS. The sample inlets are 28 meters from the nearest road.

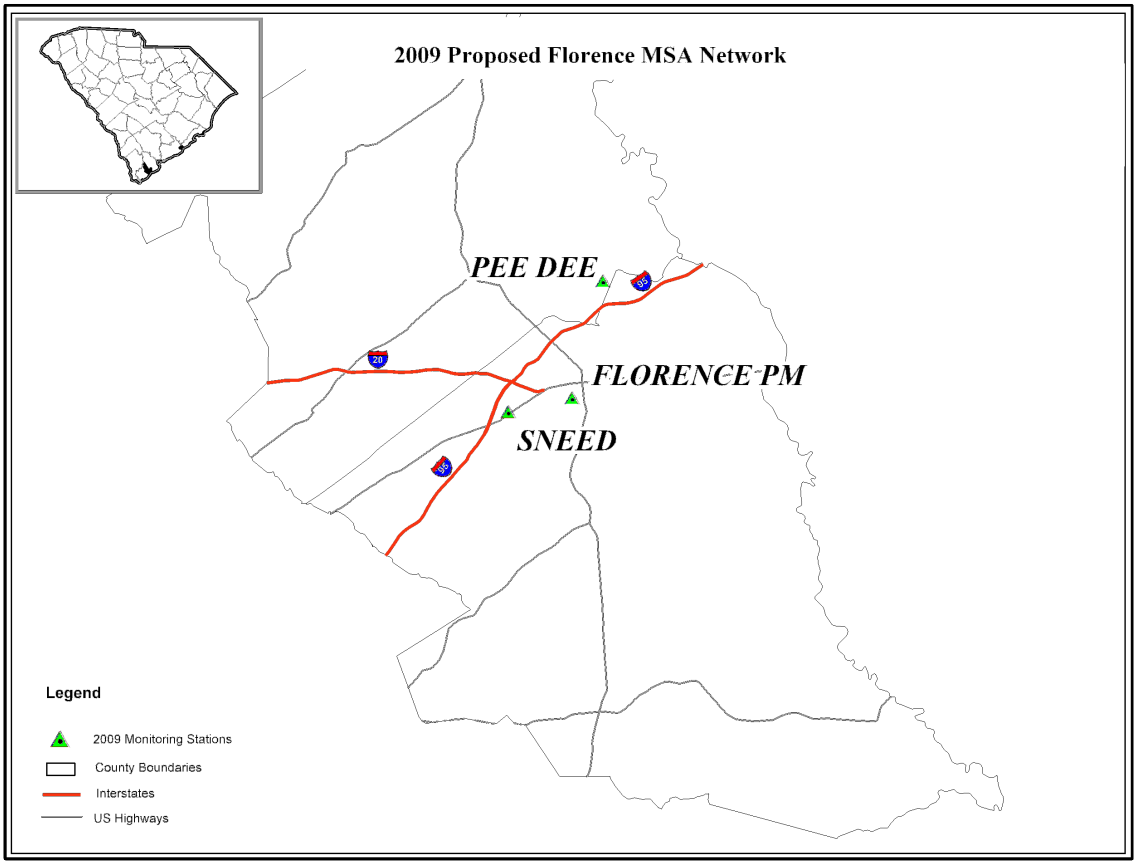
Changes for 2009

No changes are planned for 2009

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.4	Gravimetric	1:1
Speciated $PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.4	Energy dispersive XRF, Ion chromatography, STN TOT	1:3
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	3.0	TEOM	Continuous

Florence MSA



AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOCs	Metals
45-031-0003	Pee Dee Exp. Station						●												
45-041-0002	HL Sneed Middle School	●																	
Not Available	New Florence	O	O																
	TOTAL	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

O SPM
● SLAMS
●● indicates duplicate QA monitors
*see individual site description for site/parameter retention

Pee Dee Experimental Station
Air Quality Control Region: Florence (201)
CSA/MSA: Florence MSA
AQS Site ID: 45-031-0003
Location: 2200 Pocket Road (Darlington)
County: Darlington
Coordinates: +34.285696, -79.744859
Date Established: 02/25/1993
Site Evaluation: The most recent site evaluation was conducted on 03/14/2006.

The Pee Dee site is located in northeastern Darlington County. Pee Dee is sited to represent max ozone concentrations in the Florence urban area. The monitor is a SLAMS site and is located in a rural setting. The area represented by this monitor is dominated by area sources.

The sample inlets are 91 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Max Ozone Concentration	SLAMS	3.0	FEM Ultraviolet Photometry	Continuous

H L Sneed Middle School
Air Quality Control Region: Florence (201)
CSA/MSA: Florence MSA
AQS Site ID: 45-041-0002
Location: 3300 Thornblade Drive
County: Florence
Coordinates: +34.167636, -79.850404
Date Established: 01/15/1999
Site Evaluation: The most recent site evaluation was conducted on 03/16/2006.

The H L Sneed Middle School site is located in Florence County approximately 2 miles SSW of the I-20/I-95 interchange. The site was established to represent population exposure to $PM_{2.5}$ concentrations on the neighborhood scale on 02/23/1999. The sampler is a SLAMS located on the edge of the Florence urban area. The area represented by this sampler is dominated by area source emissions. The sample inlets are 70 meters from the nearest road.

Changes for 2009

This is a carry-over item from the 2008 Monitoring Plan. A new monitoring site appropriate for the objectives and monitoring requirements for $PM_{2.5}$ will be established in Florence. The Department will identify and acquire a new site in order to monitor in a maximum population exposure site. The H L Sneed Middle School monitoring site will be discontinued when the procedures for relocating a monitor have been completed.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure	SLAMS	2.5	FRM Gravimetric	1:3

New Florence
Air Quality Control Region: Florence (201)
CSA/MSA: Florence MSA
AQS Site ID: 45-041-xxxx
Location: To Be Determined
County: Florence
Coordinates: n/a
Date Established: 01/01/2008
Site Evaluation: n/a

No picture available.

The Florence MSA requires one $PM_{2.5}$ sampler in a population oriented area of expected maximum concentration. A collocated continuous monitor is also required to provide timely reporting of concentrations to the public.

The Department will establish a new site in a more densely populated area in Florence to meet the 40 CFR Part 58 Appendix D requirements for objective and collocated continuous monitoring and reporting. If the data meets the monitoring objectives, the Department will recommend to EPA discontinuing monitoring at the Sneed site.

Changes for 2009

This is a carry-over item from the 2008 Monitoring Plan.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Neighbor hood	Population Exposure Highest Concentration	SPM		FRM Gravimetric	1:3
Continuous $PM_{2.5}$	Neighbor hood	Population Exposure Highest Concentration	SPM		TEOM	Continuous

Remainder of State

AIRS ID	Site Name	$PM_{2.5}$	$PM_{2.5}$ Cont.	Speciation	PM_{10}	TSP	O_3	SO_2	NO_2	CO	Sulfate	BC	Carbonyls	SVOC	Mercury	Acid Rain	MET	VOCs	Metals
45-001-0001	Due West						O									O	O		
45-025-0001	Chesterfield	●	O	O	OO		O					O	O	O			O	O	
45-029-0002	Ashton		O				O												
	TOTAL	1	2	1	2	0	3	0	0	0	0	1	1	1	0	1	2	1	0

O SPM
● SLAMS
●● indicates duplicate QA monitors
*see individual site description for site/parameter retention

Due West
Air Quality Control Region: Greenwood (203)
CSA/MSA: None
AQS Site ID: 45-001-0001
Location: 59 Jim Scott Lane
County: Abbeville
Coordinates: +34.325318, -82.386376
Date Established: 04/02/1991
Site Evaluation: The most recent site evaluation was conducted on 06/27/2006.

The Due West site is located in northeastern Abbeville County. The site was established as a general/background location on 04/02/1991. Due West is sited to represent urban concentration scales. The area represented by this monitor is dominated by area sources. In addition to monitoring for ozone, Due West has a monitor for precipitation and a sampler for acid precipitation.

The sample inlets are 76 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	General / Background	SPM	4.0	FEM Ultraviolet Photometry	Continuous
Acid Rain	Neighbor hood	Trends	SPM	1.5	IC	Weekly
Precipitation		Local Conditions		1.5	Tipping bucket	Continuous

Chesterfield
Air Quality Control Region: Florence (201)
CSA/MSA: None
AQS Site ID: 45-025-0001
Location: Rt 2 Box 100 McBee (SC145)
County: Chesterfield
Coordinates: +34.615367, -80.198787
Date Established: 12/29/1999
Site Evaluation: The most recent site evaluation was conducted on 04/21/2003.

The Chesterfield site is located in the central part of Chesterfield County. Chesterfield is sited to represent regional concentration scales. The area represented by this monitor is dominated by area sources. The Chesterfield site has continuous monitors for black carbon, $PM_{2.5,}$ ozone and meteorological parameters. Sampling is done for $PM_{2.5}$ and PM_{10}. In addition to the STN protocol $PM_{2.5}$ speciation sampling, this site also is a precision site, with collocated FRM samplers for $PM_{2.5}$, PM_{10} and TSP. The sample inlets are 45 meters from the nearest road. The Chesterfield site is a Rural National Air Toxics Trends Site (NATTS), which includes carbonyl, VOC, SVOC and metal sampling.

Changes for 2009

The Department intends to end sampling for TSP at this site.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Regional	Regional Transport	SLAMS	3.0	FRM Gravimetric	1:3
Continuous $PM_{2.5}$	Regional	Regional Transport	SPM	3.0	TEOM – 50° C	Continuous
Speciated $PM_{2.5}$	Regional	Regional Transport	SPM	3.0	Energy dispersive XRF, Ion chromatography, STN TOT	1:6
PM_{10}	Regional	General / Background	SPM	3.0	Gravimetric ICP/MS	1:6
Collocated PM_{10}	Regional	General / Background	SPM	3.0	Gravimetric	1:6
Ozone	Regional	General / Background	SPM	2.0	FEM Ultraviolet Photometry	Continuous

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Black Carbon	Regional	General / Background	SPM	4.5	Optical absorption	Continuous
Wind speed / direction		Local Conditions		10.0	Instruments for wind speed and direction	Continuous
Semi-volatiles	Regional	NATTS	SPM	3.0	PUF/GCMS	1:6
Volatiles	Regional	NATTS	SPM	3.0	Canister/GCMS	1:6
Carbonyls	Regional	NATTS	SPM	3.0	DNPH/IC	1:6

Ashton
Air Quality Control Region: Savannah-Beaufort (058)
CSA/MSA: None
AQS Site ID: 45-029-0002
Location: Ashton Road (S-13-18)
County: Colleton
Coordinates: +33.007866 -80.965038
Date Established: 03/07/1990
Site Evaluation: The most recent site evaluation was conducted on 04/18/2005.

The Ashton site is located in northwestern Colleton County. The site was established as a general/background location on 03/07/1990. The area represented by this monitor is dominated by area sources. In addition to monitoring ozone, the Ashton site also monitors $PM_{2.5}$. The sample inlets are 8 meters from the nearest road.

Changes for 2009

No changes are planned for 2009.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Continuous $PM_{2.5}$	Regional	General / Background	SPM	4.0	TEOM 50°C	Continuous
Ozone	Urban	General / Background	SPM	4.0	FEM Ultraviolet Photometry	Continuous

Network Development

The South Carolina Ambient Air Monitoring Network provides data to support an array of decisions ranging from development of emissions strategies to protect and improve air quality to the level of activity for individuals in sensitive populations. To support these varied data users, the network must provide both stable long term measures to document trends and rapid reporting of conditions to the public. In response to land use, population and urban areas growth, some portion of the network must be adjusted to meet the changing conditions and needs.

The network described in this plan is a significant transition from the network that has evolved in the last thirty-five years. It reflects the successes in reducing ambient concentrations of Total Suspended Particulate, lead, carbon monoxide, nitrogen oxides and sulfur dioxide and the increasing concern about the impact of fine particles and ozone on public health.

As resources become available and after the extra monitoring needed in this transition is completed, studies similar to the Greenville MSA Ozone Project are planned for the major urban areas to gain better understanding of the air quality and provide information to improve the monitoring network. In addition to the intensive studies that provide a detailed 'snapshot,' it is intended that SPM sites be established and monitored in rotation to provide regular checks and long term tracking of the trends in air quality in all areas of the state including smaller cities, towns and rural areas. The implementation of this long term strategy will be developed during this transition and implemented as resources again become available. Project plans will be developed for the monitoring and data analysis activity to better define the scope of these strategies prior to implementation.

Areas where long term strategies are being considered include:

- Greenville MSA Ozone Study (begin 2008) - addition of supplementary SPM ozone sites to investigate variability and refine monitoring network to meet objectives.
- Columbia MSA Ozone Study - addition of supplementary SPM ozone sites to investigate variability and refine monitoring network to meet objectives.
- Columbia MSA particulate surveillance (begin 2008) - rotation of SPM $PM_{2.5}$ sites through areas with higher rates of growth an changes in land use to determine trends and identify areas of concern (Parklane, Sandhill, and potentially Lower Richland, Lexington and Chapin).
- Aiken MSA Ozone Study - addition of supplementary SPM ozone site (possibly Wagener) to investigate proper size of MSA network and additionally monitor trends in rural areas between the North Augusta-Aiken area and Columbia.
- Aiken MSA Particulate Study (begin 2008) - investigation of SPM $PM_{2.5}$ concentrations in North Augusta and Aiken along with existing rural data to determine population exposure and possible need for monitoring of mass or the components of particulate to assist in area air quality improvement efforts.
- Charleston-North Charleston MSA Ozone Study - investigation of more appropriate location for the MSA maximum concentration site.
- Charleston-North Charleston Particulate Project - multi-objective investigation to identify a single site to potentially replace FAA and CPW and establish current baseline concentrations and population exposure in the Charleston 'neck.'
- State-wide air toxics study – rotational study of semi-volatile concentrations in medium sized cities throughout the state. Cities to be included are but not limited to: Orangeburg, Greenwood, Sumter, Rock Hill, Florence and Chester.

- State-wide metals study – establish a series of sites throughout the state to characterize population exposure to metals concentration in urbanized portions of the following counties: Georgetown, Orangeburg, Florence, Darlington, Lexington, Aiken, Greenville, Chesterfield and Charleston.
- York County Ozone Study - limited investigation of ozone population exposure, spatial variability and transport supplementing existing North and South Carolina monitoring.

Monitors Discontinued for 2009

Monitoring will be discontinued effective December 31, 2008.

Site	ID	Parameters	Date Established	
Columbia MSA				
Cowpens	45-021-0002	O_3	March 25, 1988	Site realignment
Clemson CMS	45-077-0002	O_3	July 14, 1979	Site realignment

Cowpens
Air Quality Control Region: Greenville- Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA
AQS Site ID: 45-021-0002
Location: McGinnis Road (Old SC 110)
County: Cherokee
Coordinates: +35.130396, -81.816567
Date Established: 03/25/1988
Site Evaluation: The most recent site evaluation was conducted on 06/26/2006.

The Cowpens site is located in northwestern Cherokee County at the Cowpens National Battlefield. The site was established as an upwind background monitor on 03/25/1988. The monitor is located in a rural setting and is dominated by area sources. Cowpens is sited to represent urban scale concentrations of ozone between the Greenville-Spartanburg-Anderson and the Charlotte-Gastonia-Salisbury CSAs. The Ozone monitor has been designated SLAMS. In addition to ozone, the Cowpens site also supports an acid precipitation sampler. The sample inlets are 23.0 meters from the nearest road.

The monitor will be operated through 2008 as part of the Greenville Ozone Study and to support ongoing plant damage research being conducted by the NPS Air Quality Division. Continued operation of all sampling and monitoring at the Cowpens site beyond 2008 will be dependent on availability of additional resources and support.

Changes for 2009

This site will be discontinued at the end of the 2008 Ozone monitoring season.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
Ozone	Urban	Upwind / Background	SPM	3.0	FEM Ultraviolet Photometry	Continuous
Acid Rain	Regional	Regional Transport	SPM	1.5	IC	Weekly

Clemson CMS
Air Quality Control Region: Greenville-Spartanburg (202)
CSA/MSA: Greenville-Spartanburg-Anderson CSA / Greenville MSA
AQS Site ID: 45-077-0002
Location: 106 Hope Well Road
County: Pickens
Coordinates: +34.653606, -82.838659
Date Established: July 14, 1979
Site Evaluation: The most recent site evaluation was conducted on 03/18/2003.

The Clemson Continuous Monitoring Site (CMS) site is located on the grounds of Clemson University near the western border of Pickens County. The site was established as a general-background monitor on 7/14/1979. This monitor was intended to document ozone concentrations upwind of the Greenville-Spartanburg urbanized area. The area represented by this monitor is dominated by area sources.

The sample inlets are 27.4 meters from the nearest road.

Changes for 2009

This site will be discontinued at the end of the 2008 Ozone monitoring season.

Monitors:

Parameter	Scale	Objective	Designation	Probe Height (m)	Analysis Method	Sampling Frequency
$PM_{2.5}$	Urban	General Background	SPM	4.2	TEOM 50°C	Continuous
Ozone	Urban	General background	SPM	3.5	FEM Ultraviolet Photometry	Continuous

REFERENCE

[1] http://www.scdhec.net/environment/baq/ambientairmonitoring.aspx
[b] http://www.epa.gov/ttn/amtic/calendar.html